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NAVAL ARCHITECTURE:

A TREATISE

ON

LAYING OFF AND BUILDING WOOD, IRON, AND COMPOSITE SHIPS.

BY

SAMUEL J. P. THEARLE,

Fellow of the Royal School of Naval Architecture; Member of the Institution of Naval Architects; of the Controller of the Navy's Department, Admiralty, Whitehall.

VOL. II.—PLATES.

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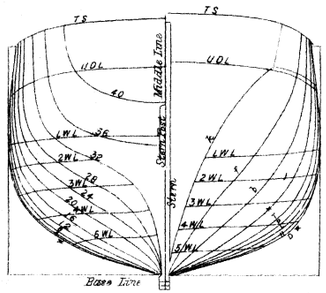
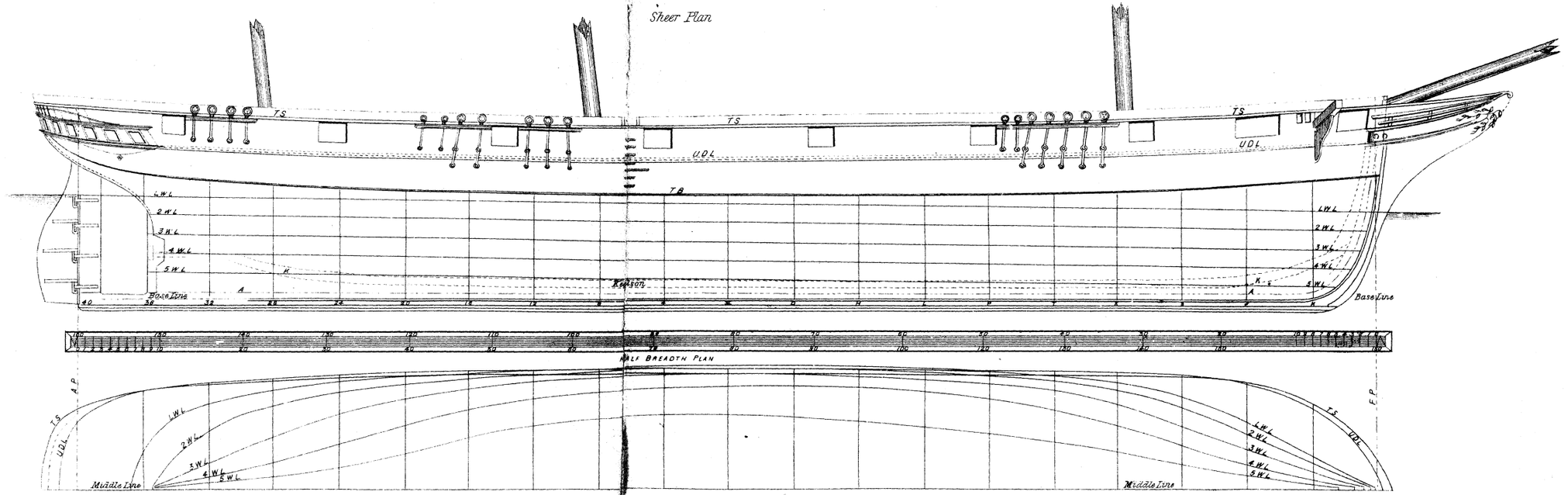
Plate I

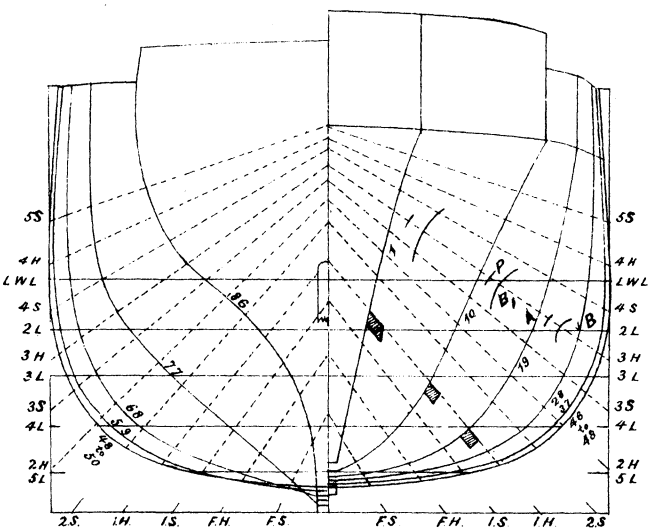
Body Plan



Sheer Plan



PlateII



PlateIII

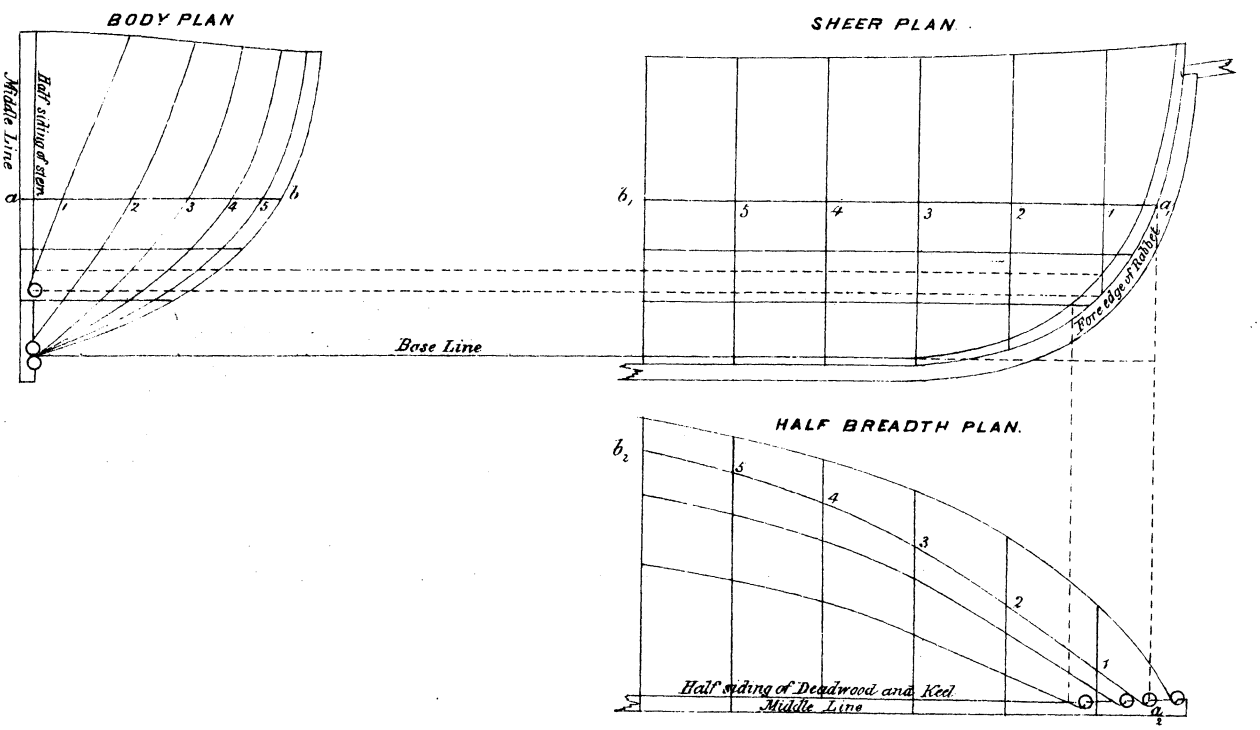


Plate IV

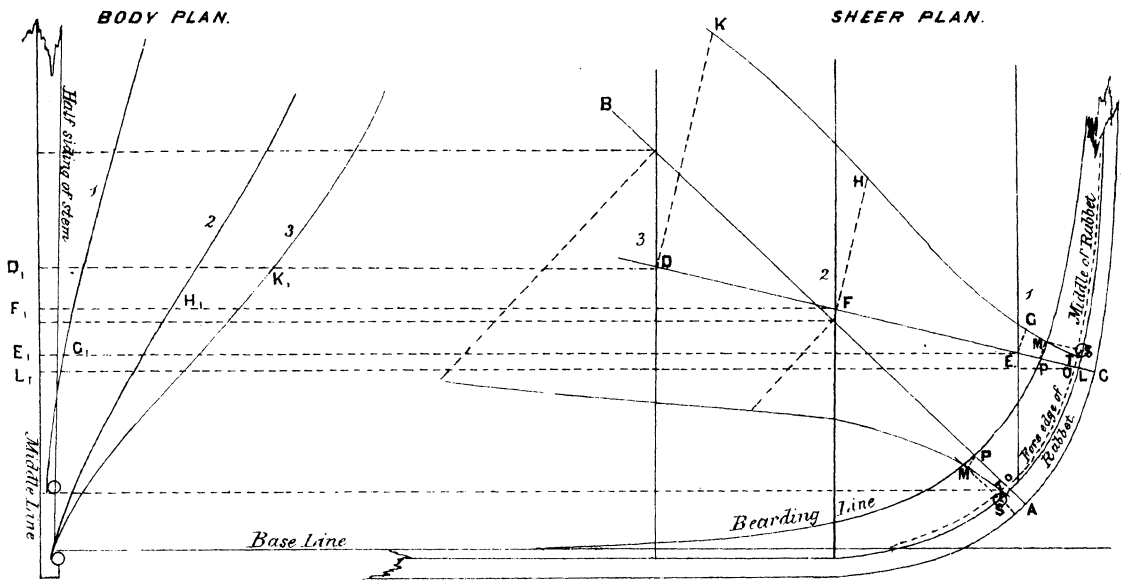


Plate V

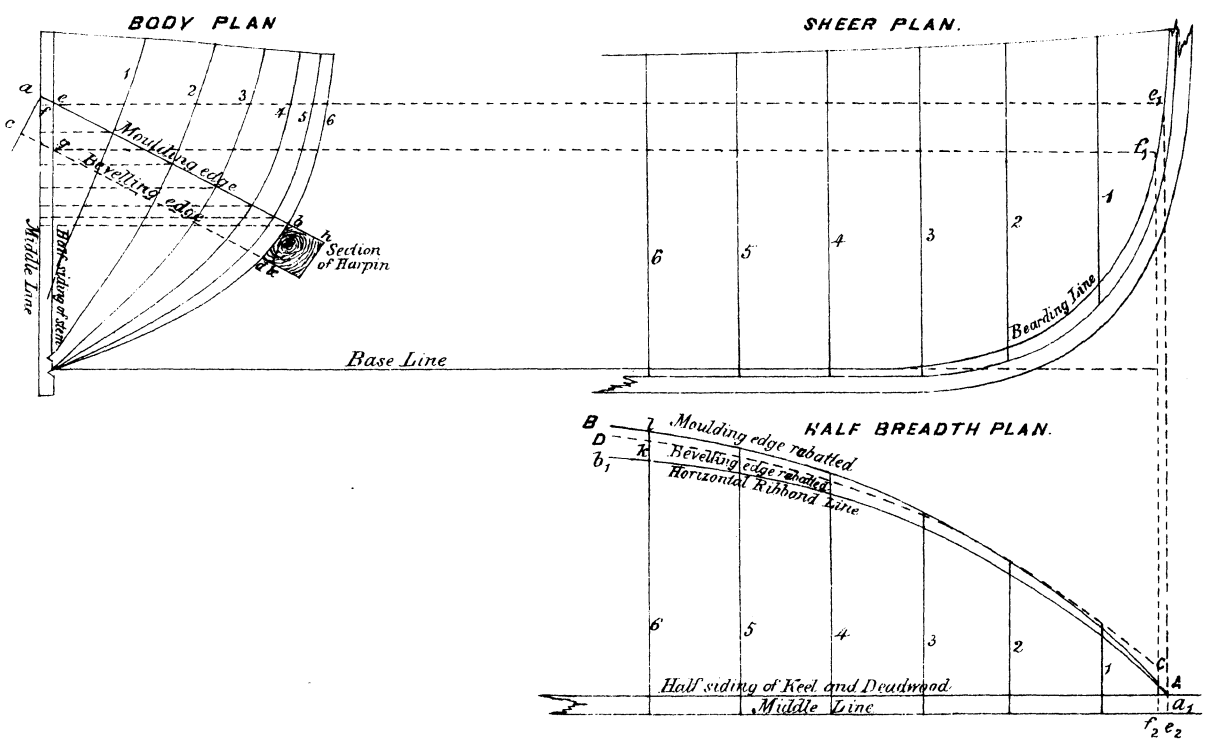


Plate VI

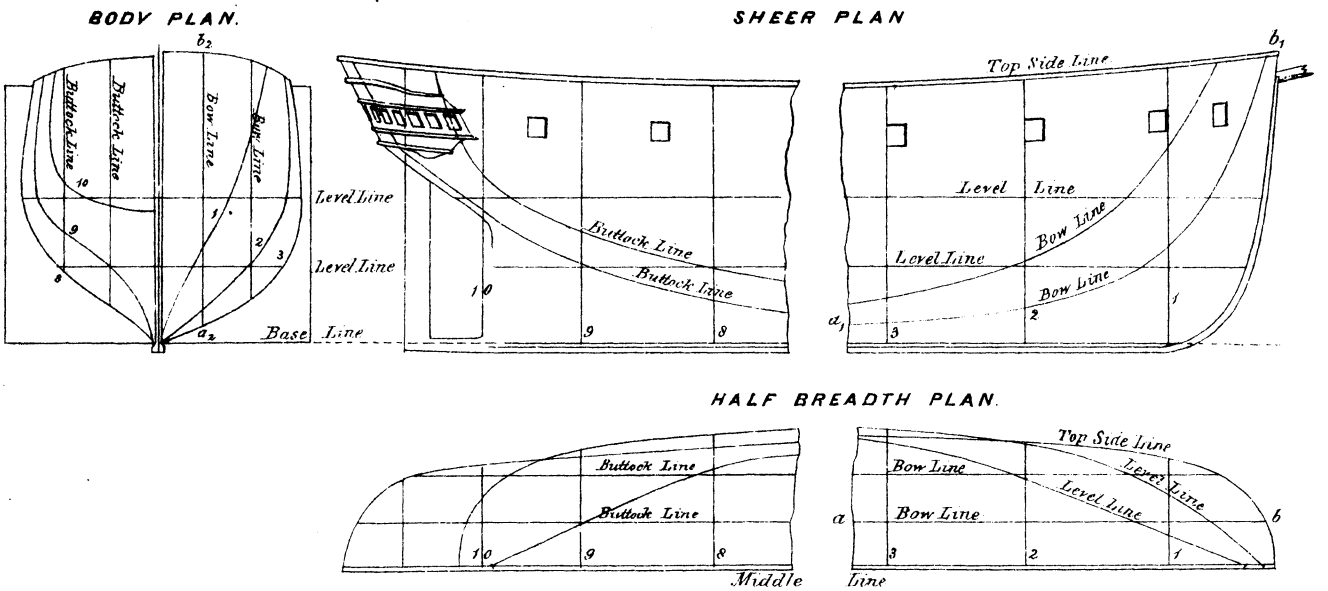


Plate VII

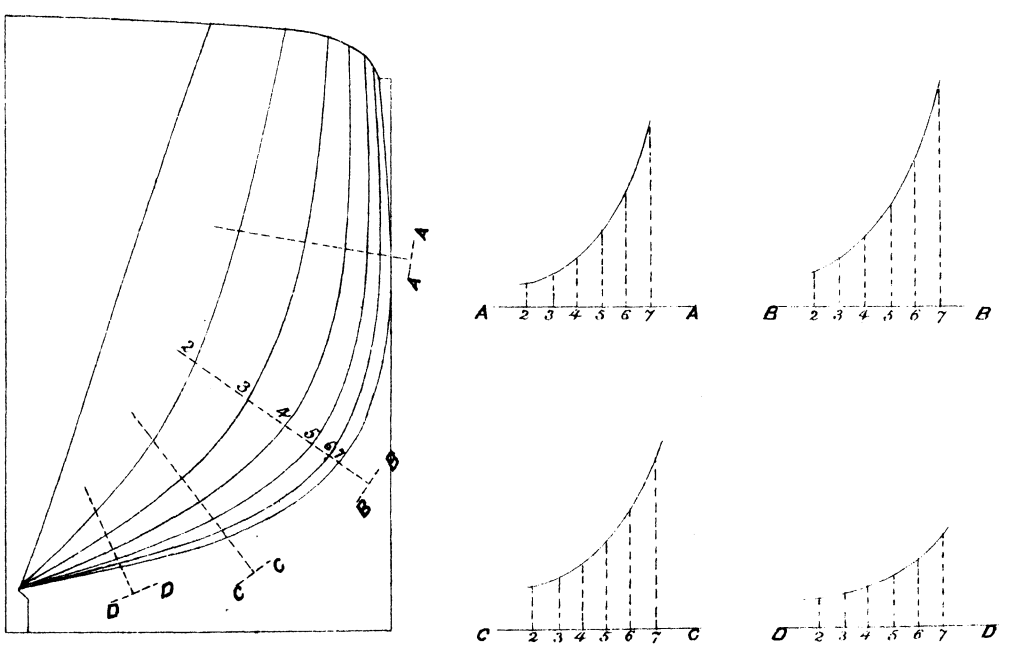


Plate VIII

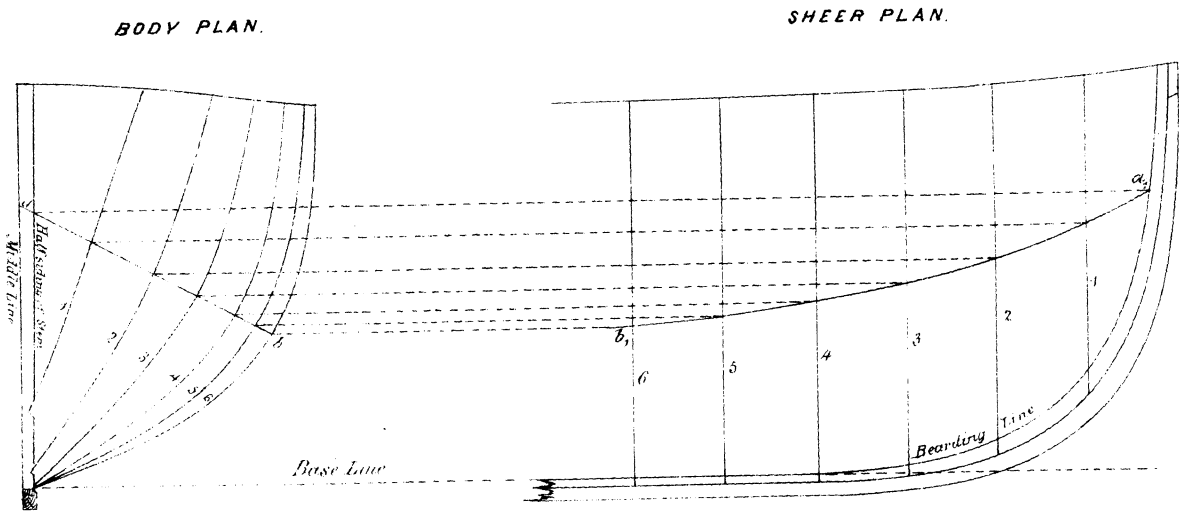


Plate IX

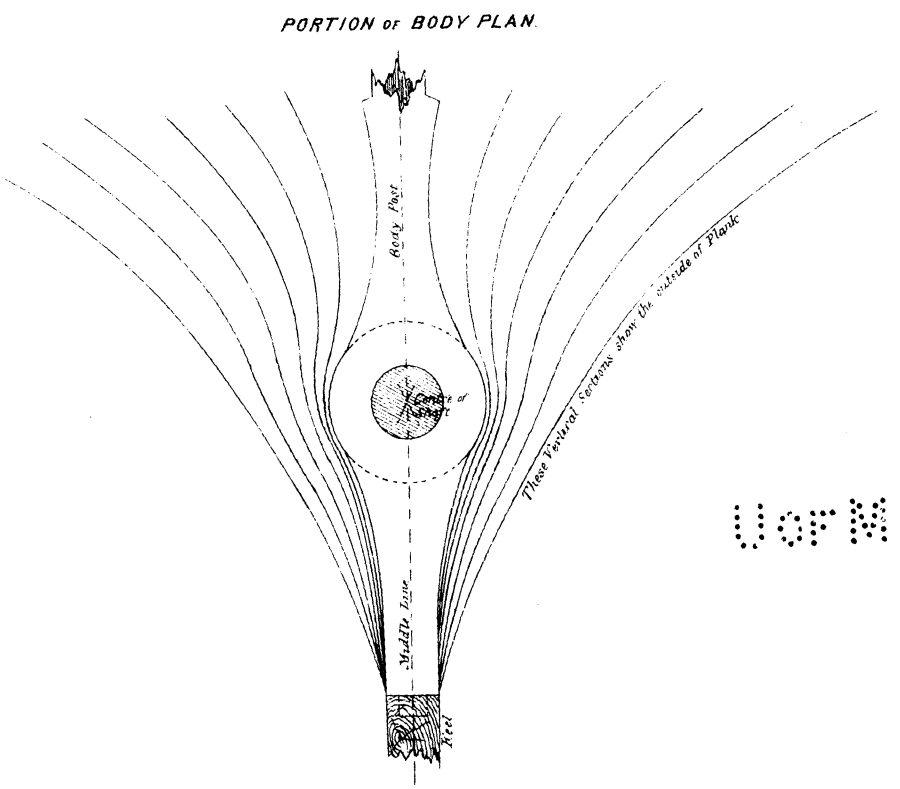


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Plate X

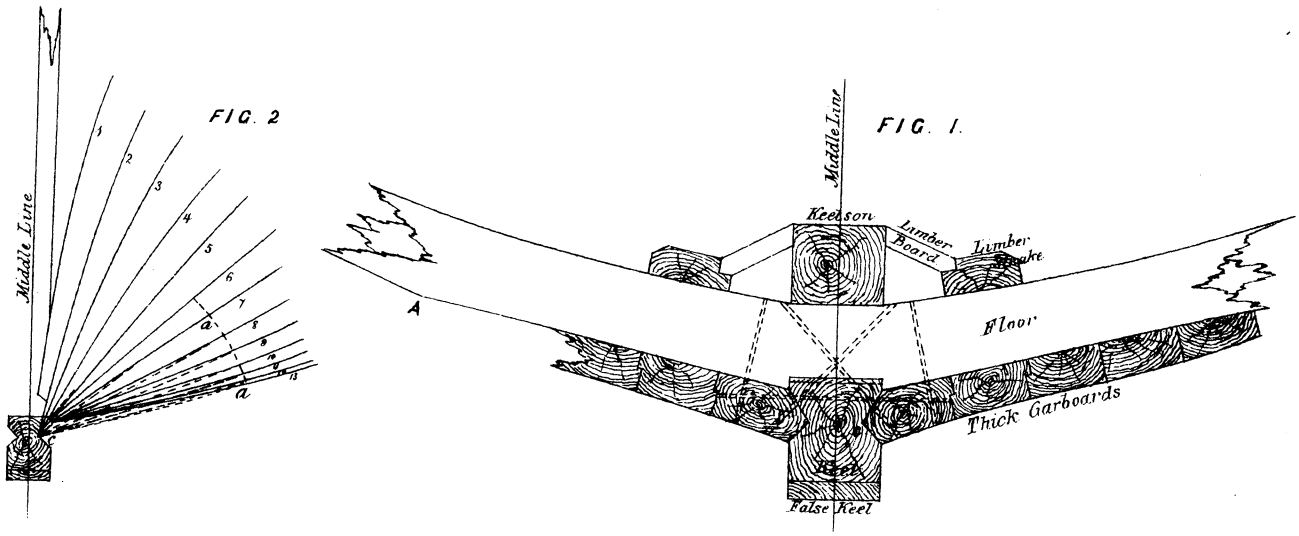


Plate XI

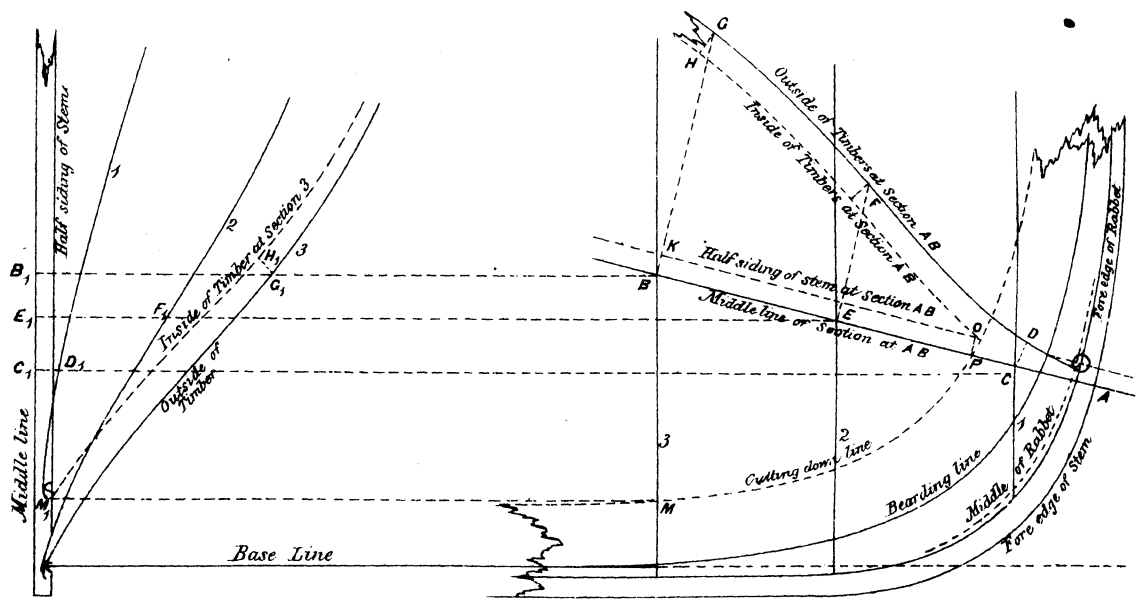

Half siding of Stem
Middle line
Base Line
Inside of Timber at Section 3
Outside of Timber
Outside of Timbers at Section A B
Inside of Timbers at Section A B
Half siding of stem at Section A B
Middle line or Section at A B
Cutting down line
Bearding line
Middle of Rabbet
Fore edge of Rabbet
Fore edge of Stem

FIG. 1

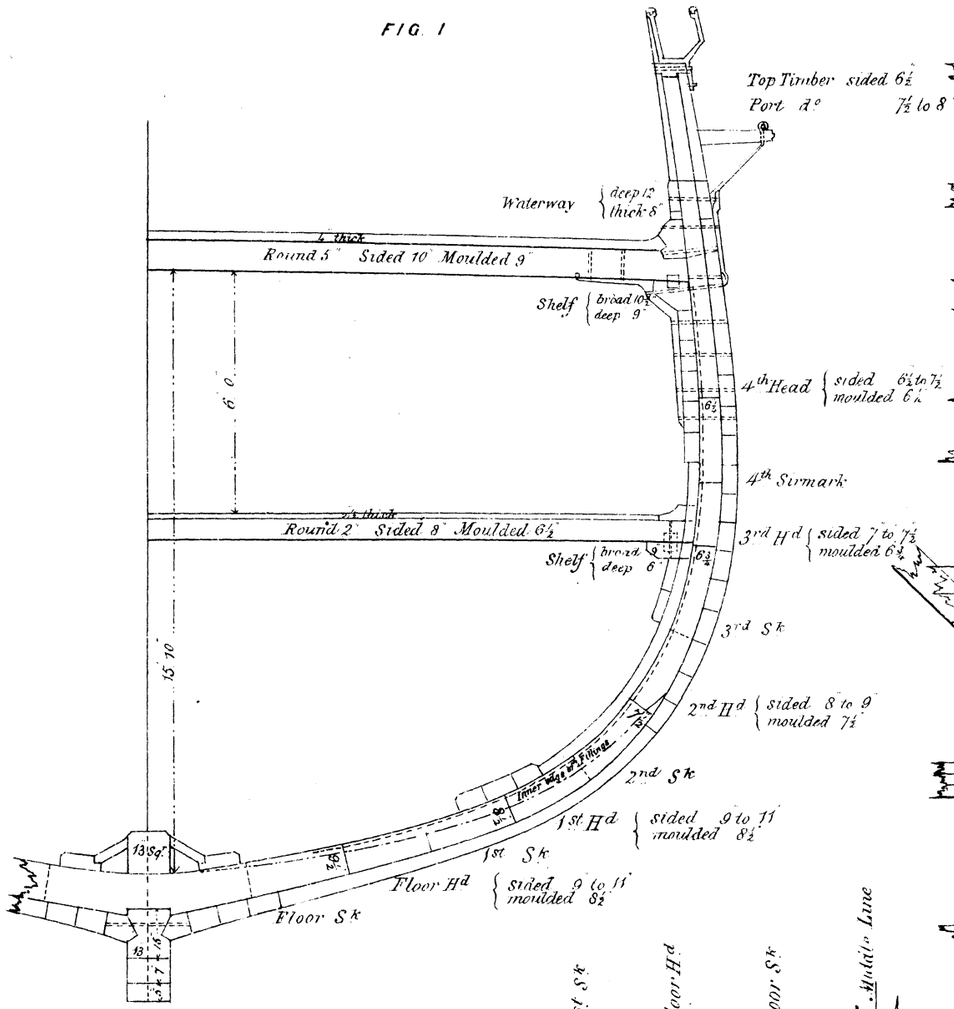

Top Timber sided 6½"
Port Sill 7½ to 8"
Waterway { deep 12 thick 8"
4" thick
Round 5" Sided 10" Moulded 9"
Shelf { broad 10½ deep 9"
4th Head { sided 6½ to 7½ moulded 6"
6½
4th Sirmark
6' 0"
15' 10"
4" thick
Round 2" Sided 8" Moulded 6½
Shelf { broad 9 deep 6"
6½
3rd Hd { sided 7" to 7½ moulded 6½
3rd Sk
2nd Hd { sided 8 to 9 moulded 7½
2nd Sk
Inner edge of Filling
1st Hd { sided 9 to 11 moulded 8½
1st Sk
Floor Hd { sided 9 to 11 moulded 8½
Floor Sk
13 Sq.
13 Sq.

FIG 2.

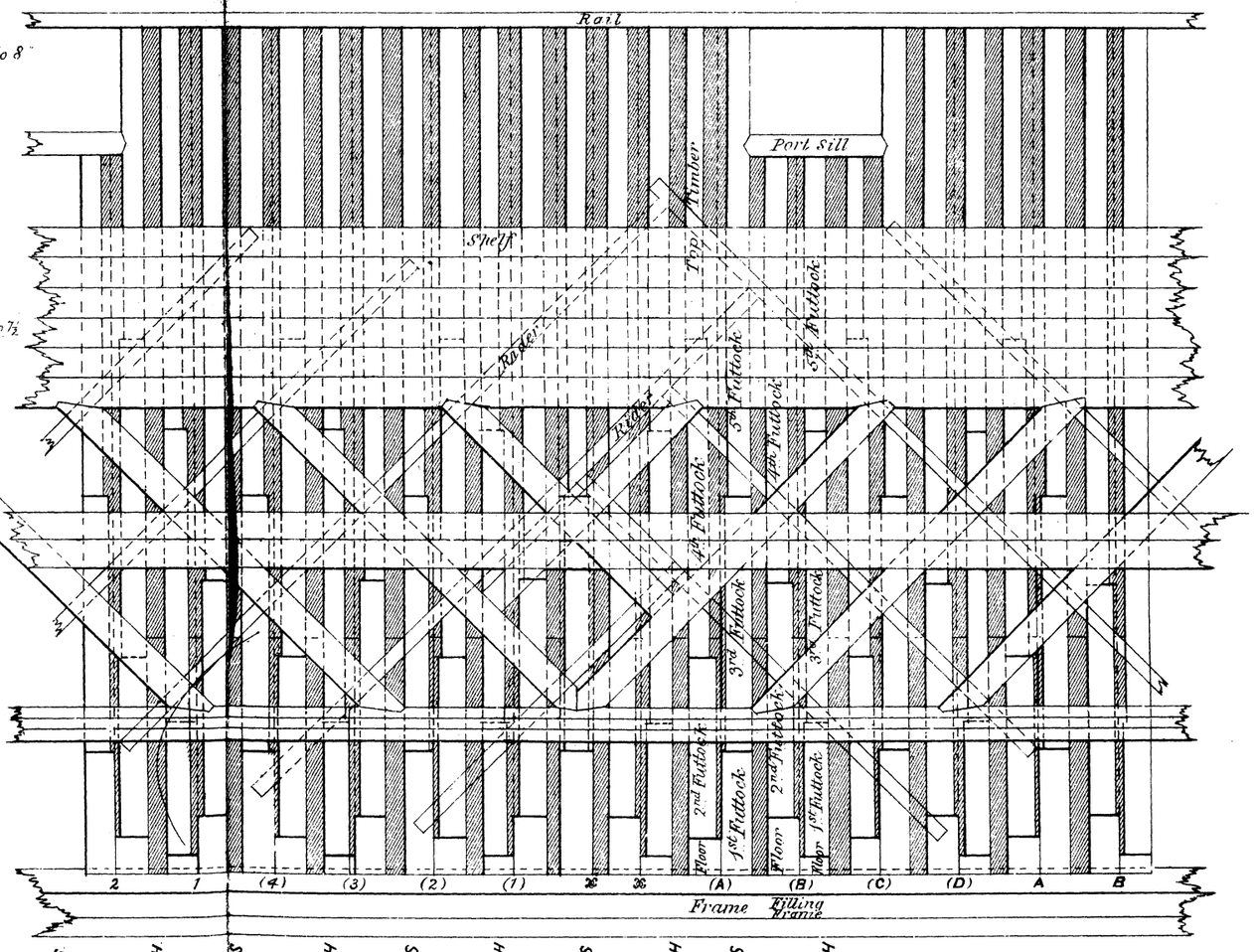


FIG 3.

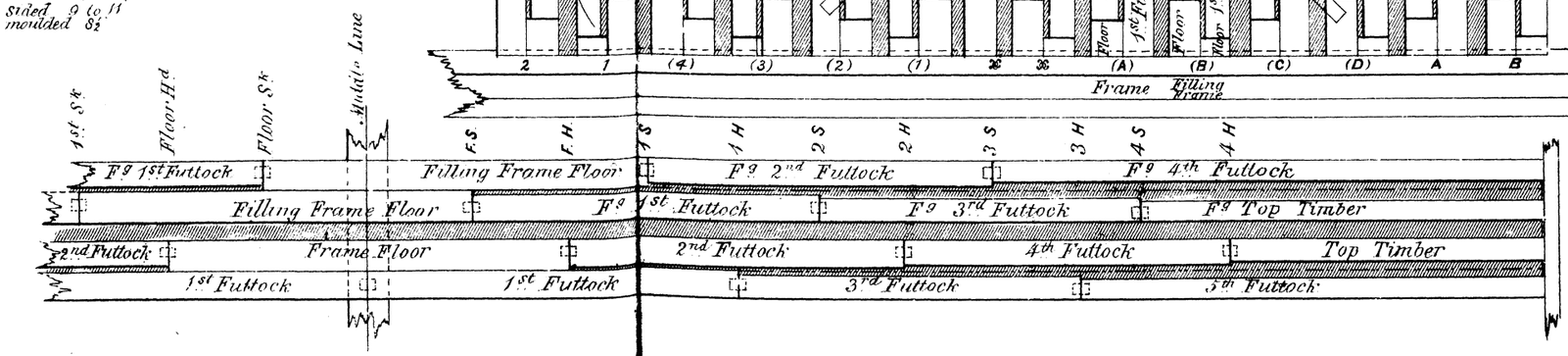


Plate XIII

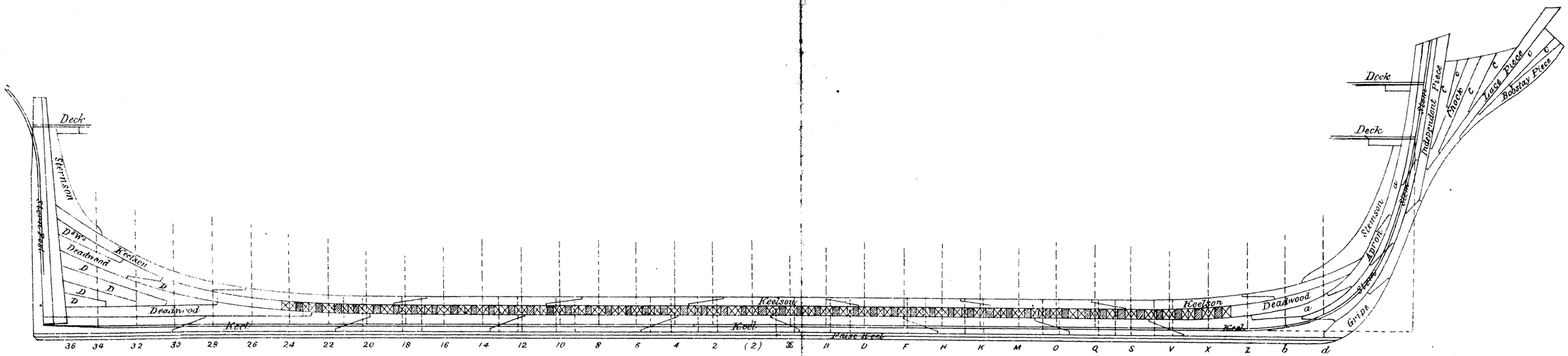
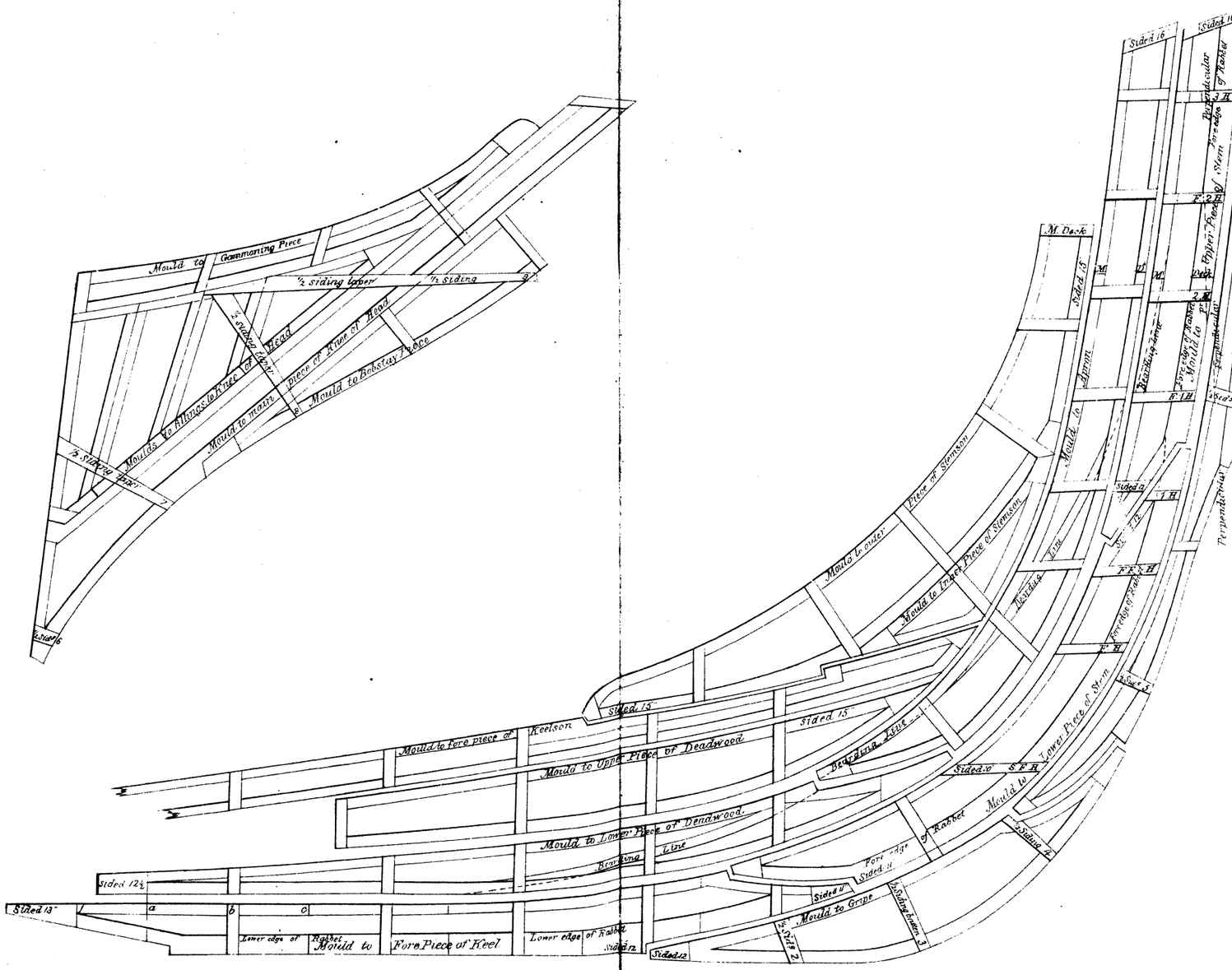
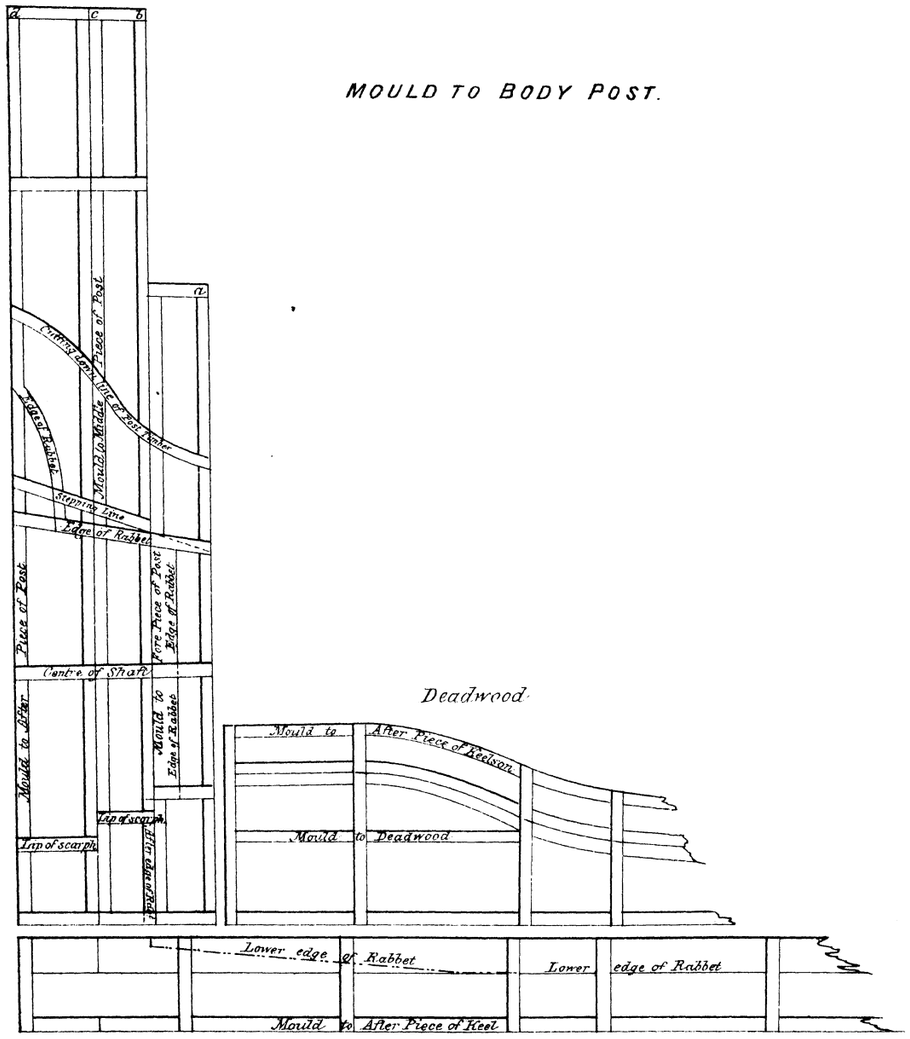

Deck
Sternson
Apron
Keelson
Deadwood
Keel
Rising Wood
Stem
Fore Foot
Main Piece
Inner Post
Transom
Counter
Lower Transom
Upper Transom
Lower Counter
Upper Counter
Lower Breast Hook
Upper Breast Hook
Lower Deck
Upper Deck
Waterways
Clamp
Shelf
Hanging Knees
Lodging Knees
Beam Arms
Hatchway
Ledge
Coamings
Hatch Piece
Carlings
Ledge Piece
Bulkhead
Partners
Pillars
Bitts
Windlass
Capstan
Scuttle
Companion
Skylight
Binnacle
Cabin
Forecastle
Steerage
Gallery
Quarter Deck
Poop
Round House
Channel
Chain Plates
Bobstay Piece
Gripe
Rudder
Tiller
Rudder Coat
Rudder Braces
Rudder Pintles
Sternpost
Stern Frame
Stern Post
Fashion Piece
Transom Knee
Quarter Knee
Counter Timbers
Quarter Timbers
Stern Timbers
Stern Knee
Apron
Inner Stem
Stem
Cutwater
Fore Foot
Dead Wood
Keel
Scarf
Rabbet
Plank
Garboard Strake
Sheer Strake
Main Wale
Bends
Channel Wale
Quarter Wale
Upper Wale
Main Rail
Quarter Rail
Gunwale
Capping
Rail
Head Rail
Fore Rail
Quarter Rail
Taffrail
Bulwarks
Stanchions
Rail
Netting
Boarding
Ceiling
Limber Boards
Limber Holes
Footwaling
Sleepers
Orlop
Platform
Hold
Bilge
Bilge Ways
Bilge Blocks
Shores
Cant Timbers
Floor Timbers
Futtocks
Top Timbers
Lower Futtock
Upper Futtock
Lower Top Timber
Upper Top Timber
Frames
Ribs
Timbers
Scantling
Moulding
Siding
Thickness
Room & Space
Half Breadth
Height of Breadth
Cutting down
Rising
Sweep
Tumble Home
Flare
Bow
Quarter
Run
Entrance
Fine
Full
Bluff
Sharp
Lines
Draught of Water
Load Line
Light Line
Displacement
Tonnage
Register
Burthen
Measurement
Admeasurement
Gross
Net
Old Measurement
New Measurement
Old Tonnage
New Tonnage
Old Register
New Register
Old Burthen
New Burthen
Old Gross
New Gross
Old Net
New Net
Old Displacement
New Displacement
Old Draught of Water
New Draught of Water
Old Load Line
New Load Line
Old Light Line
New Light Line
Old Sweep
New Sweep
Old Tumble Home
New Tumble Home
Old Flare
New Flare
Old Bow
New Bow
Old Quarter
New Quarter
Old Run
New Run
Old Entrance
New Entrance
Old Fine
New Fine
Old Full
New Full
Old Bluff
New Bluff
Old Sharp
New Sharp
Old Lines
New Lines
Old Draught
New Draught
Old Load
New Load
Old Light
New Light
Old Displacement
New Displacement
Old Tonnage
New Tonnage
Old Register
New Register
Old Burthen
New Burthen
Old Gross
New Gross
Old Net
New Net
Old Measurement
New Measurement
Old Admeasurement
New Admeasurement

Plate XV


Mould to Gammoning Piece
½ siding taper
½ siding
½ siding taper
Moulds to fillings to Knee of Head
Mould to main piece of Knee of Head
Mould to Bobstay Piece
½ Sided
Sided
Sided 15"
Mould to fore piece of Keelson
Sided 15"
Mould to Upper Piece of Deadwood
Sided 15"
Mould to Lower Piece of Deadwood
Rising Line
Sided 12½
Sided 15"
a
b
c
Lower edge of Rabbet
Mould to Fore Piece of Keel
Lower edge of Rabbet
Sided 12
Sided 12
Sided 16
Sided 16
Sided 16
M. Deck
Sided 15
Apron
Mould to
Piece of Stemson
Mould to inner Piece of Stemson
Mould to outer
Rising Line
Fore edge of Rabbet
Sided 9
Sided 11
Sided 11
Mould to Gripe
Sided 12
Sided 12
Sided 10
Lower Piece of Stem
Mould to
Sided 10
Sided 9
Sided 9
Sided 9

MOULD TO BODY POST.



SECTIONS OF STERN POST at a, b, c, & d.

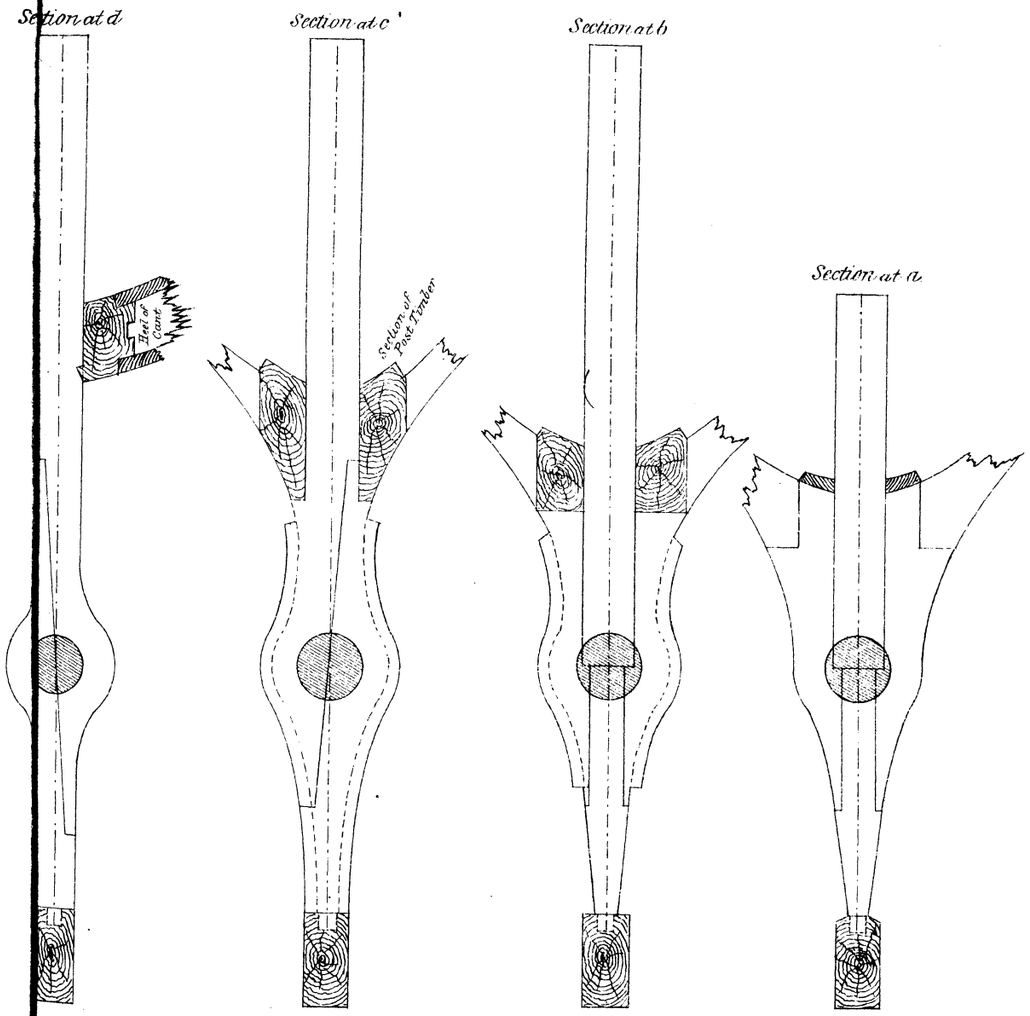


Plate XVII

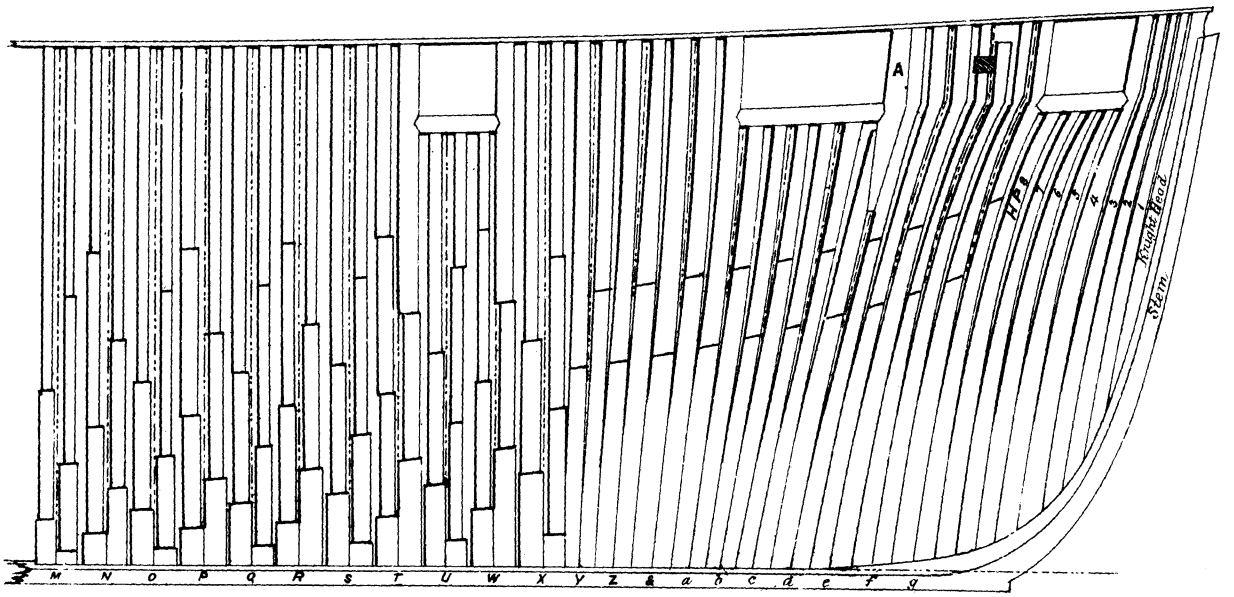


Plate XVIII

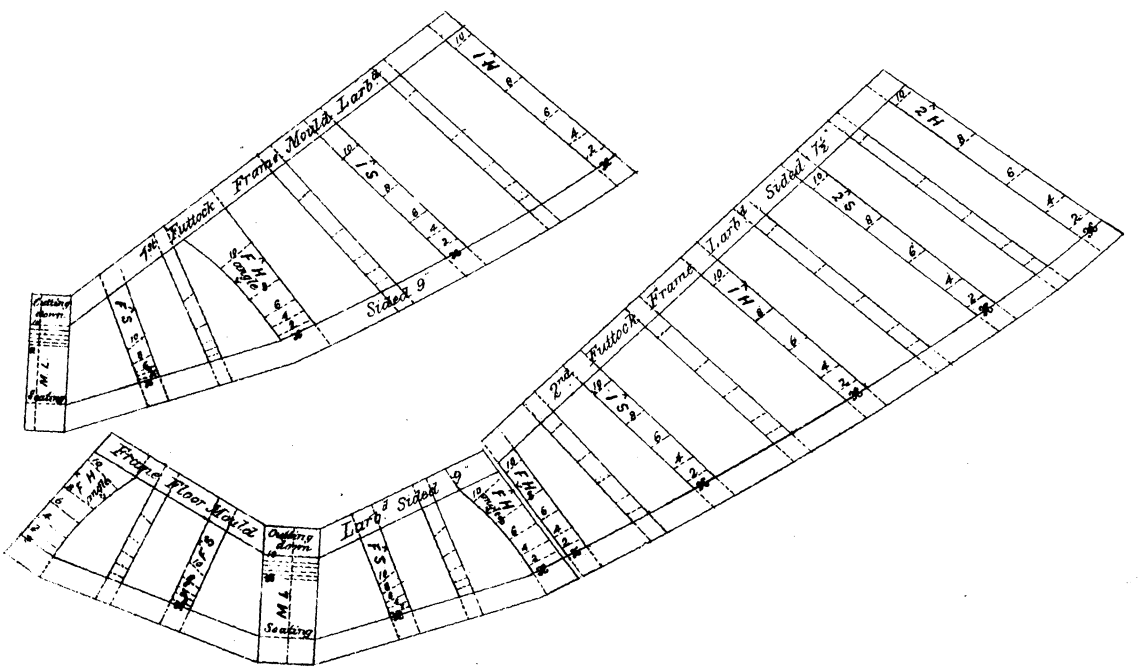


Plate XVIII A

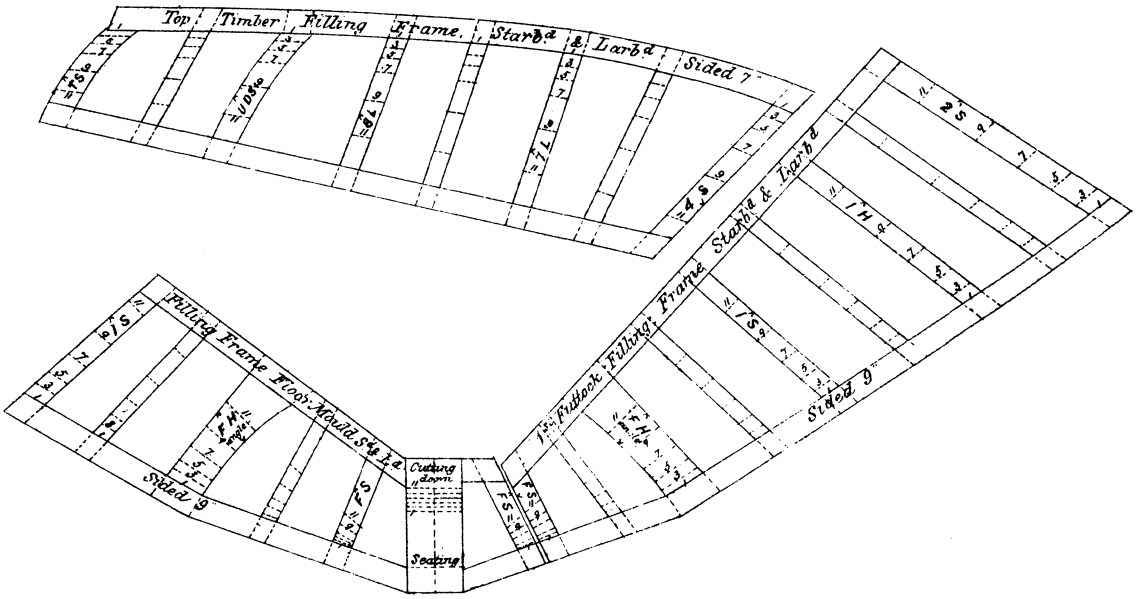


Plate XIX

FIG 1
BODY PLAN.

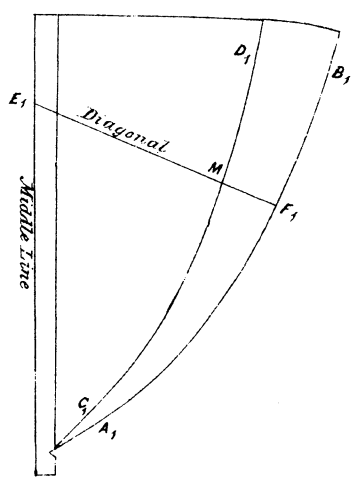


Fig. 2.
HALF BREADTH PLAN.

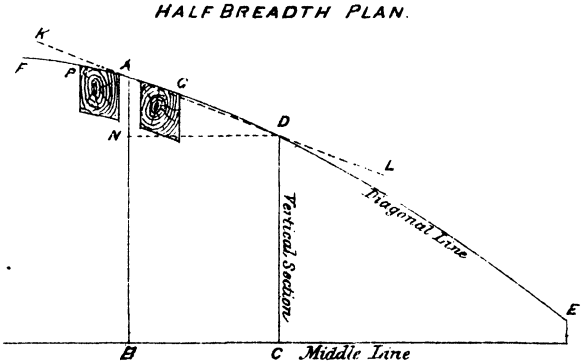


Plate XX

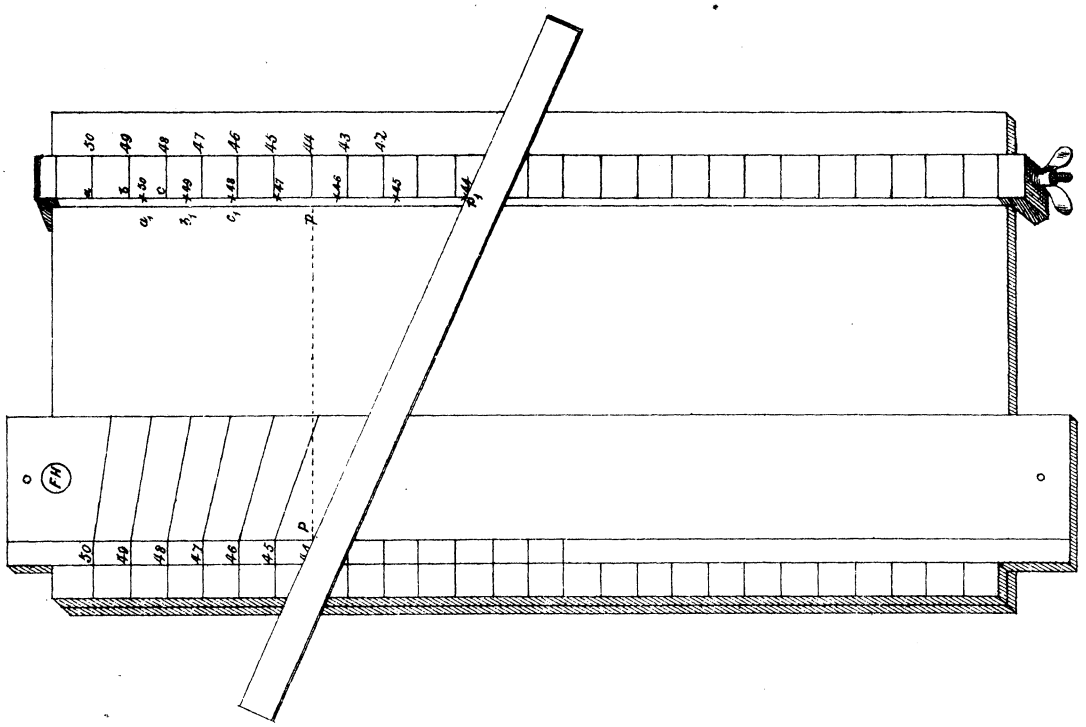


Plate XX A

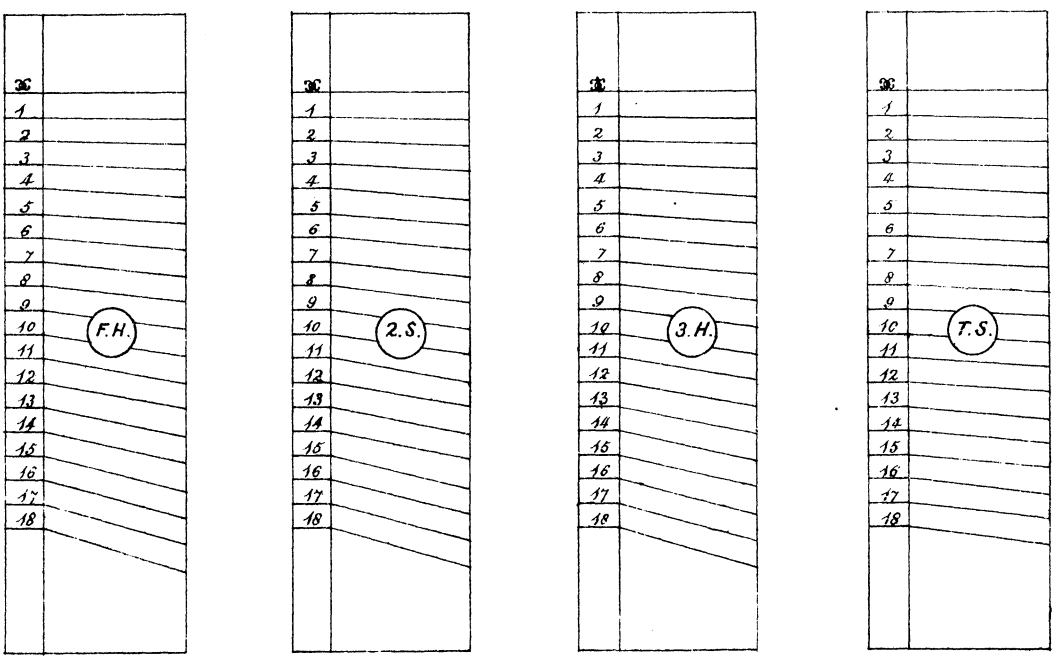


Plate XXI

HALF BREADTH PLAN.

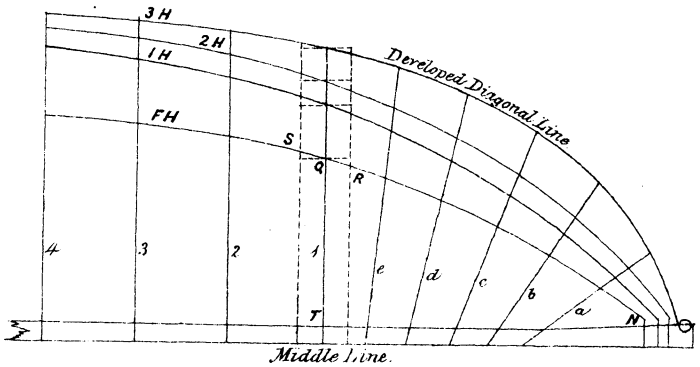


Plate XXII

FIG. 2.

FIG. 1.

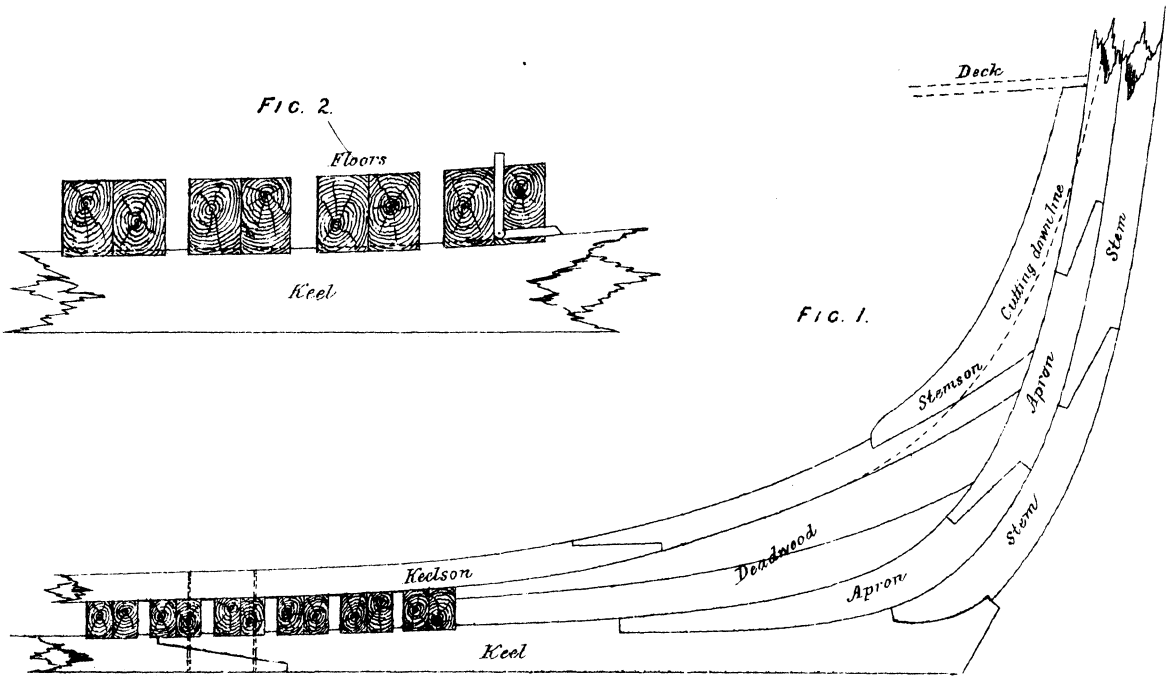


Plate XXIII

FIG 1.

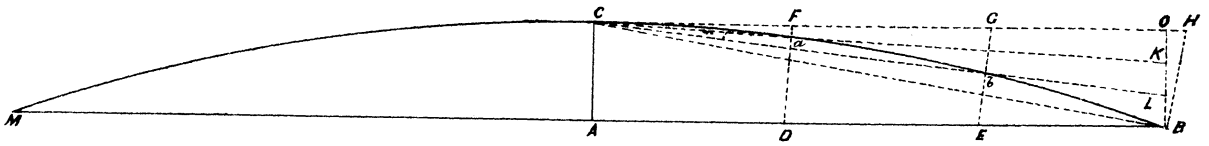


FIG. 2

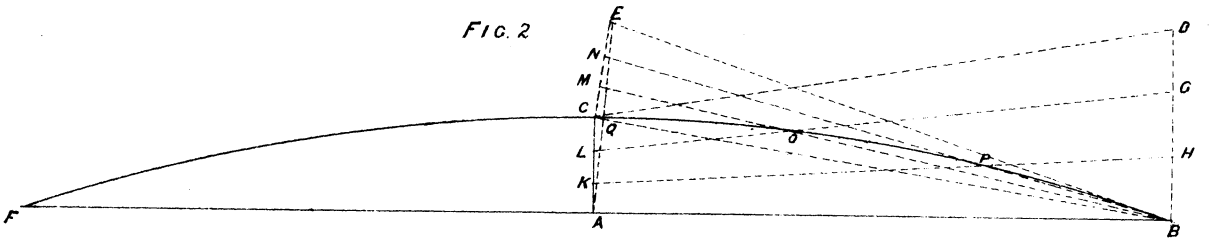


FIG. 3.

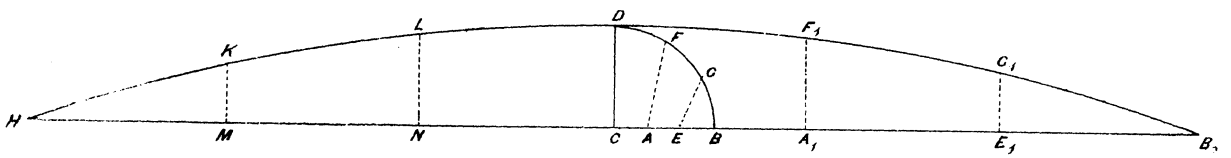


Plate XXIV

FIG. 2

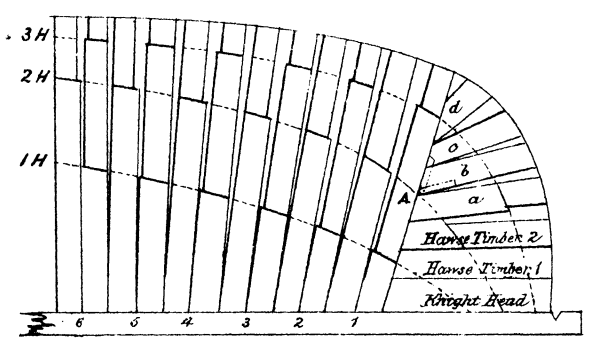
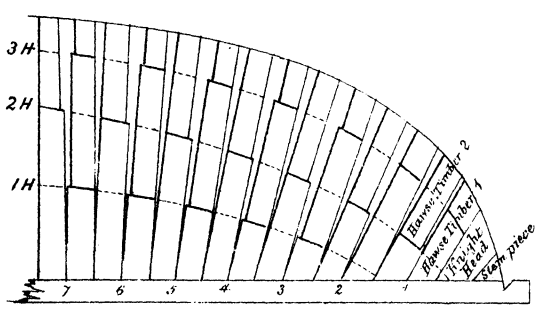


FIG. 1.



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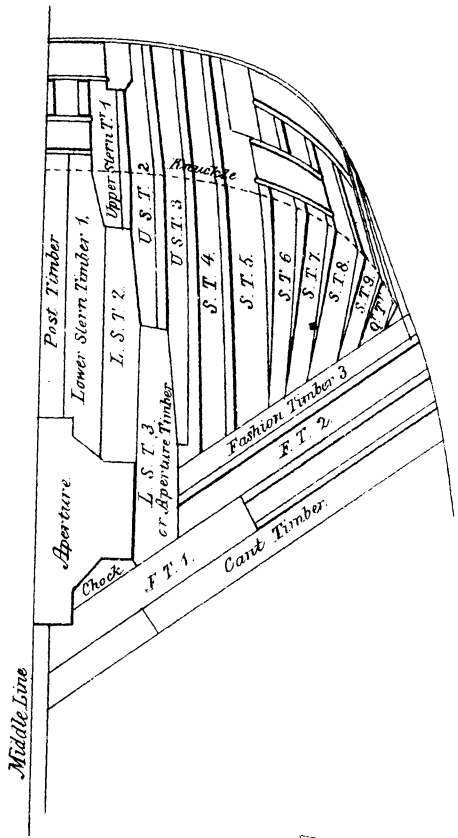


Plate XXVI

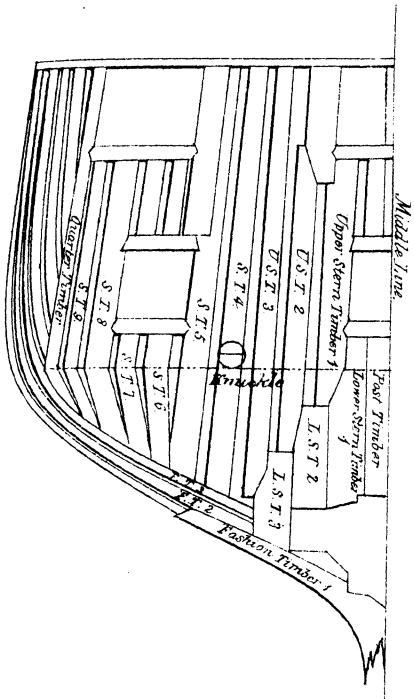


Plate XXVII

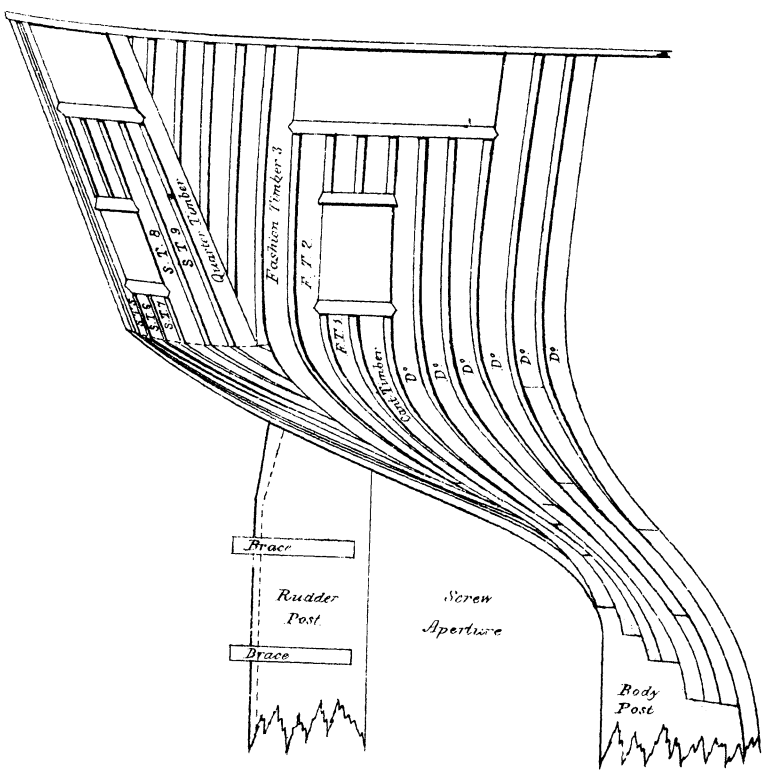


Plate XXVIII

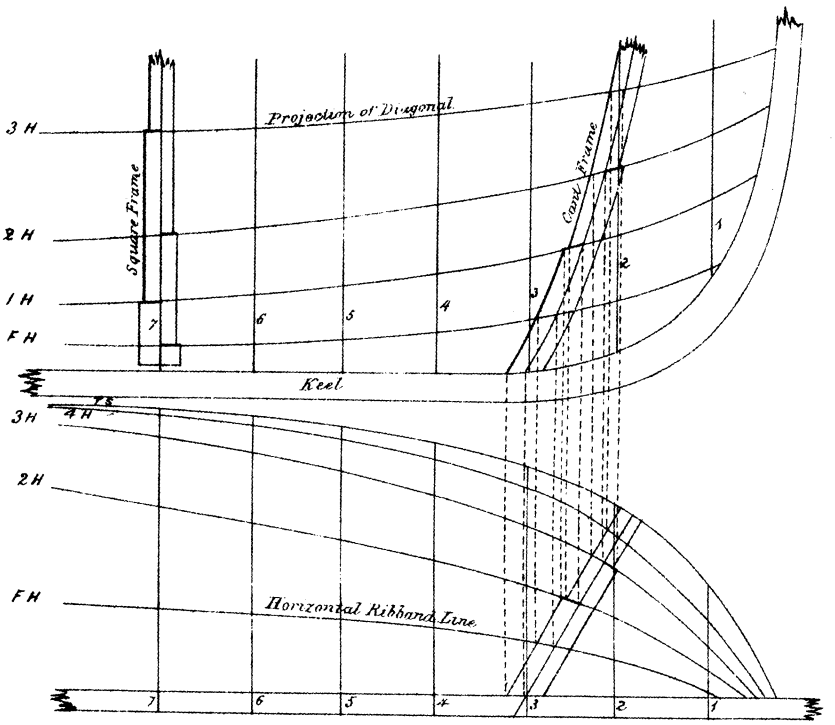


Plate XXIX

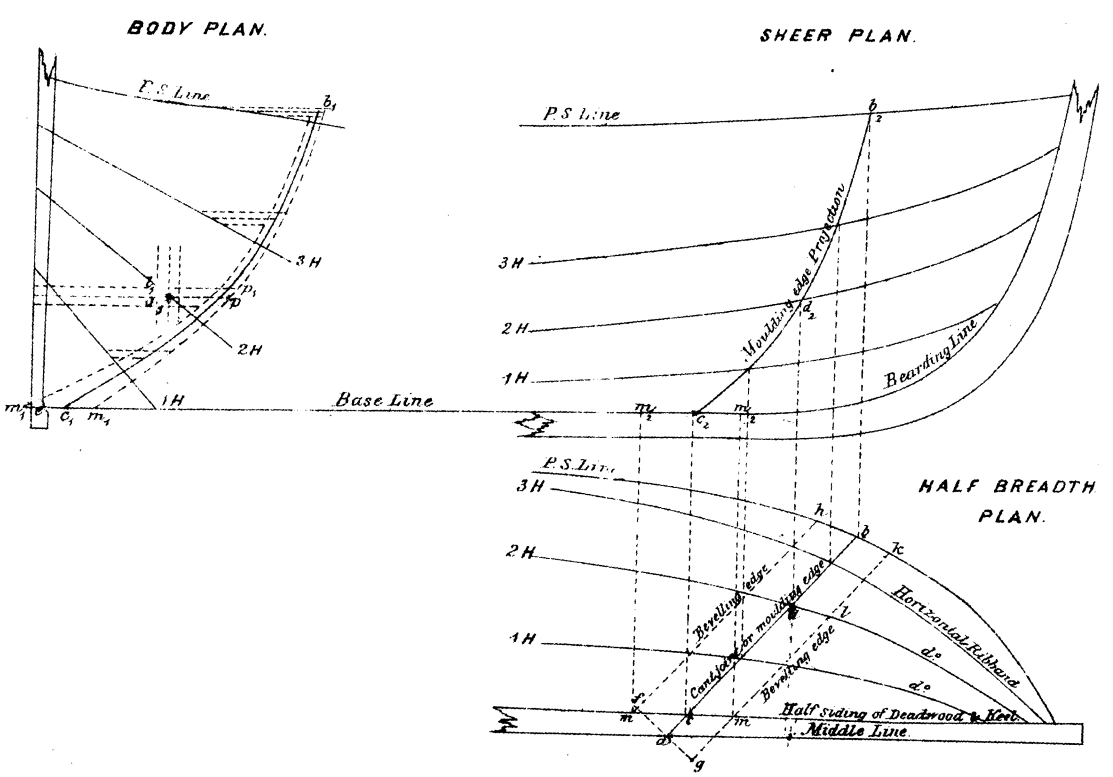
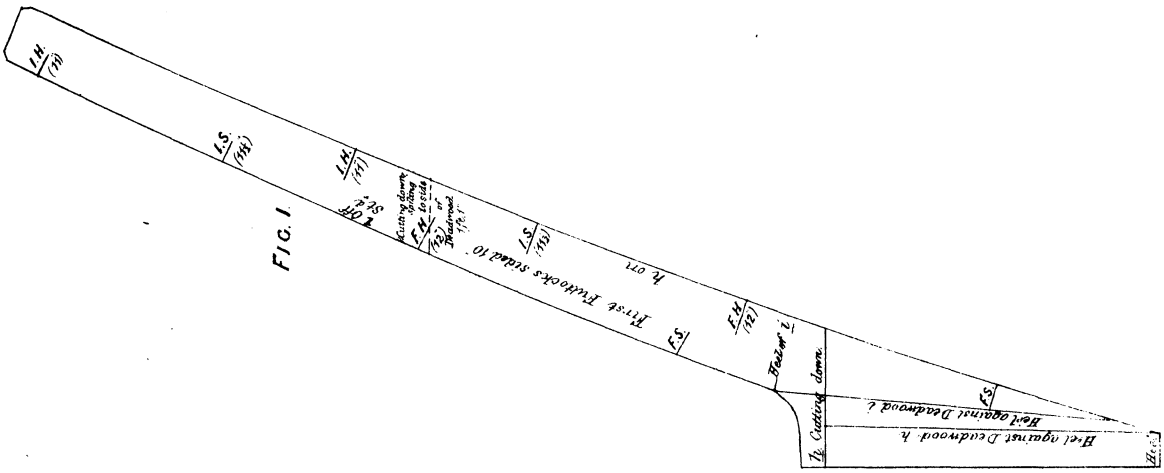


Plate XXX



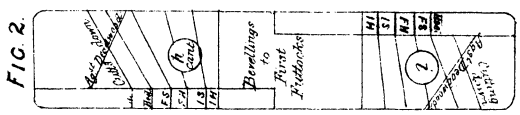


Plate XXXI

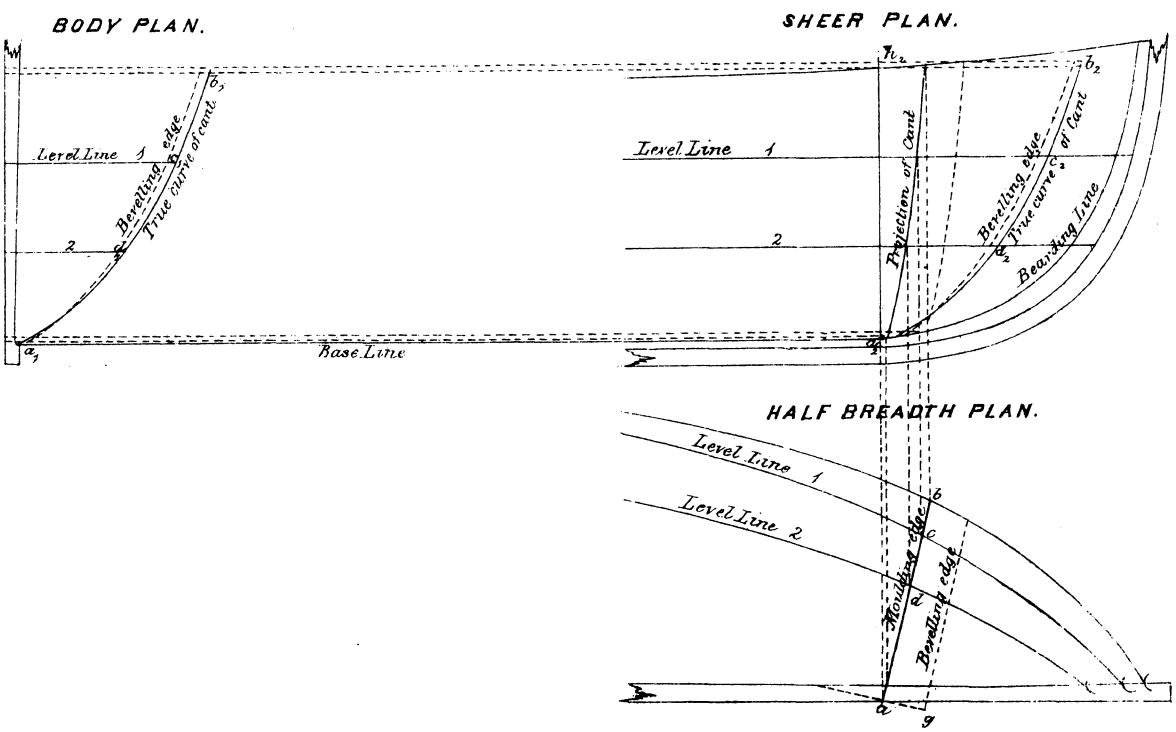


Plate XXXII

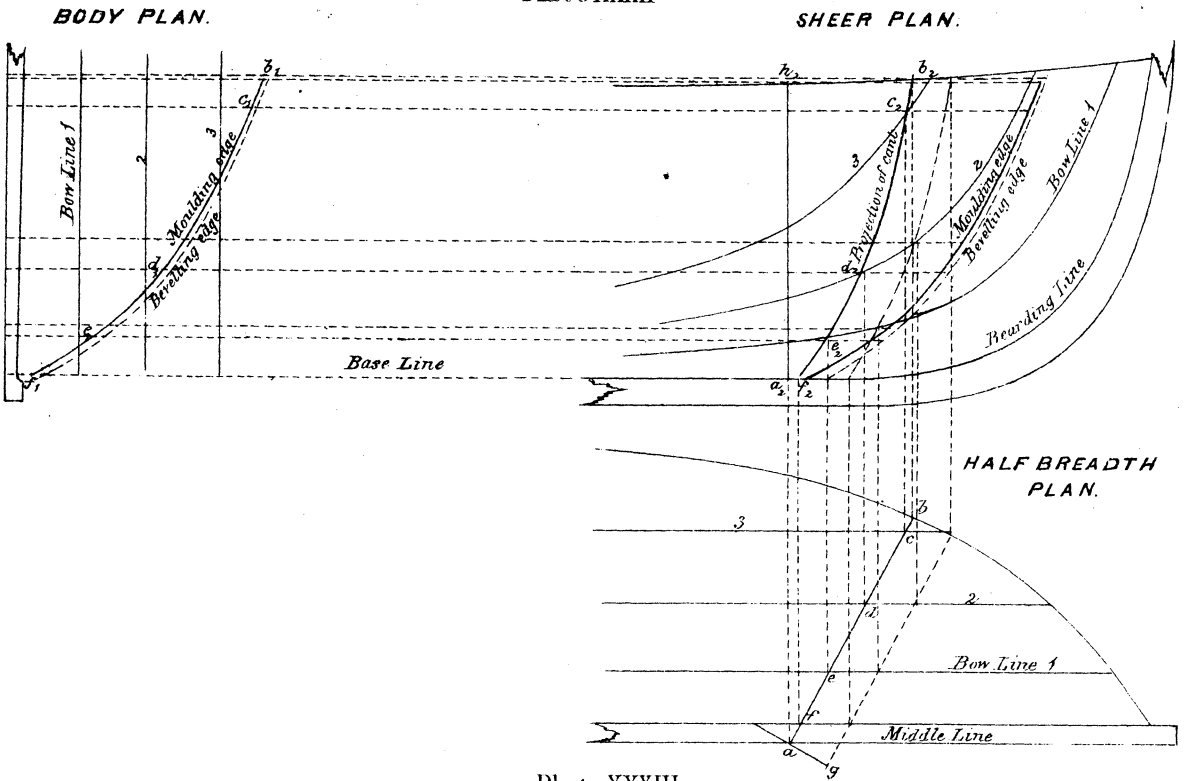


Plate XXXIII.

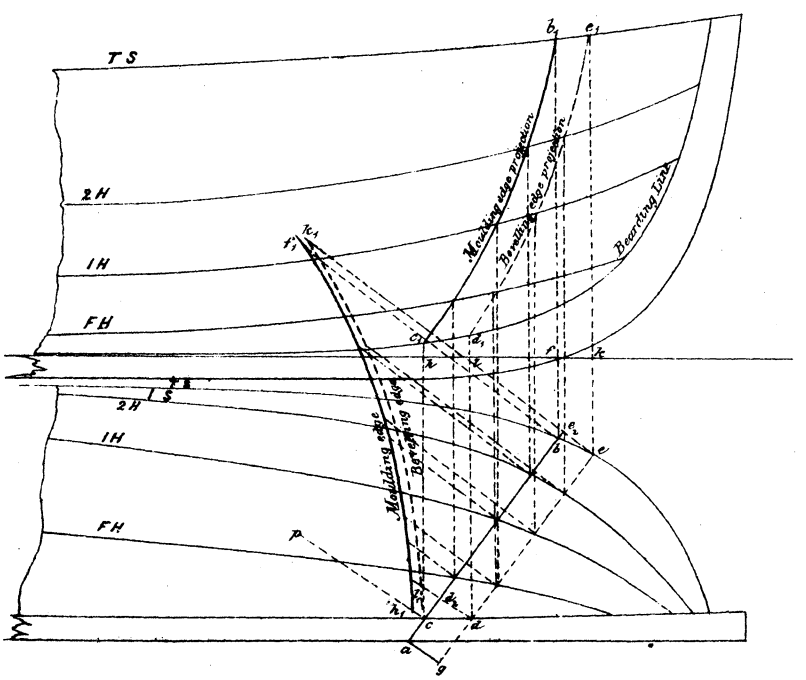


Plate XXXIV

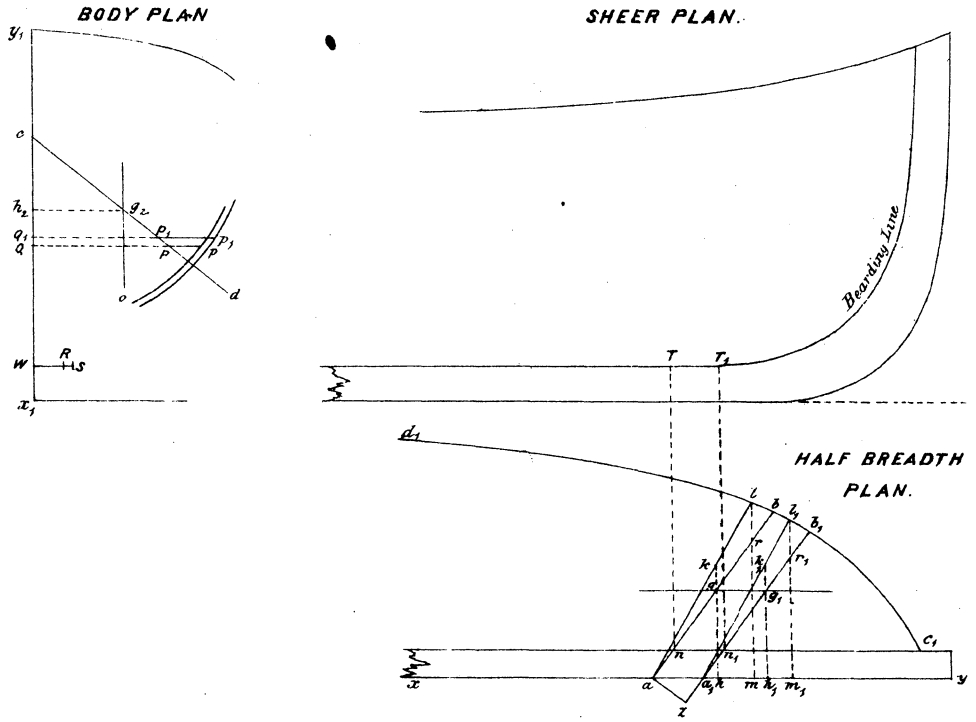


Plate XXXV

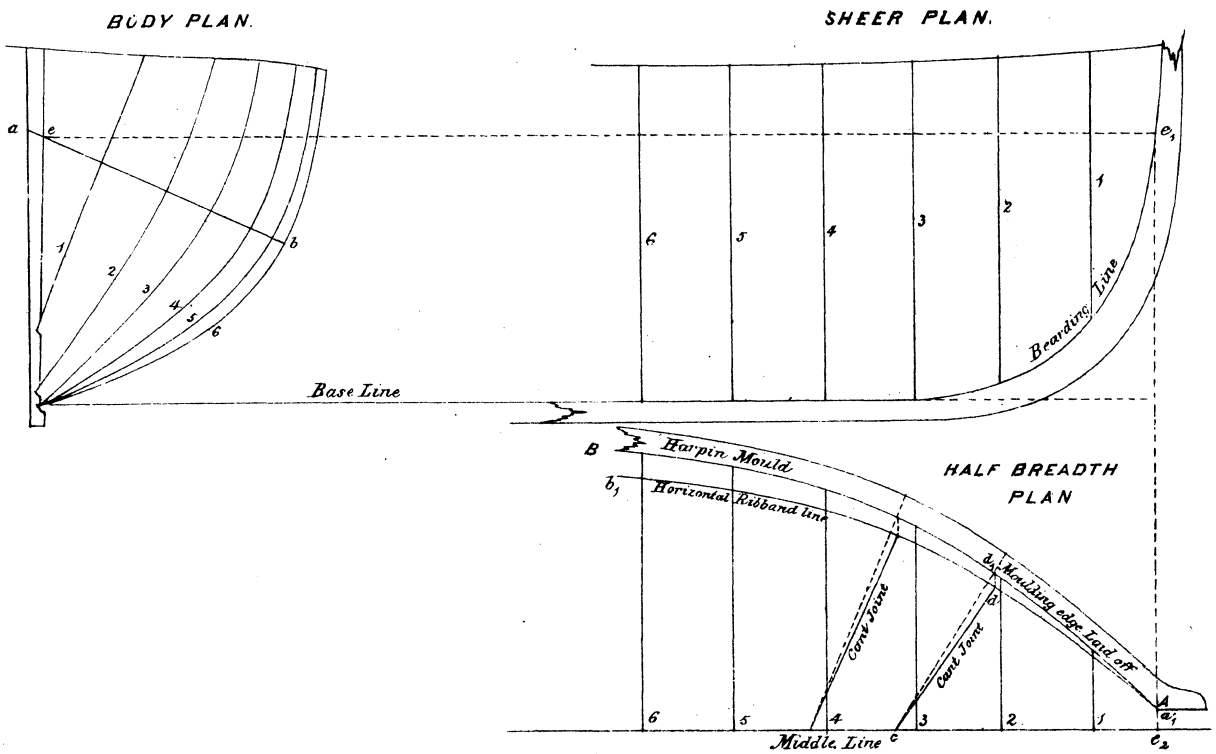


Plate XXXVI

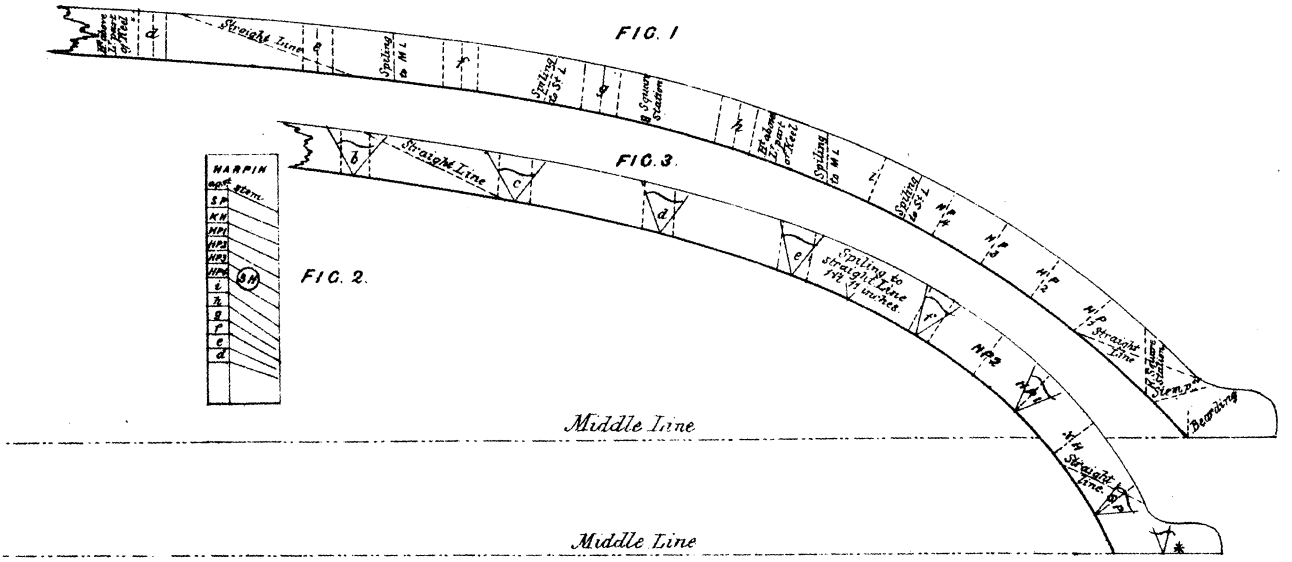


Plate XXXVII

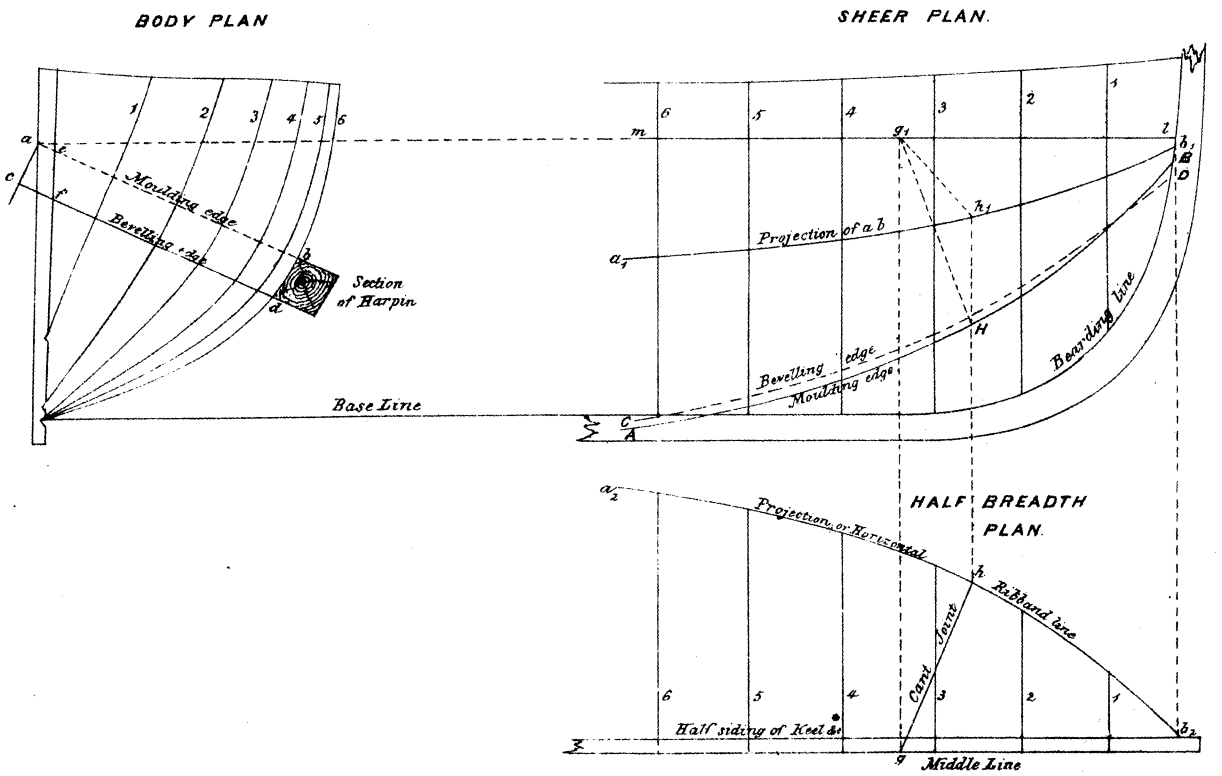


Plate XXXVIII

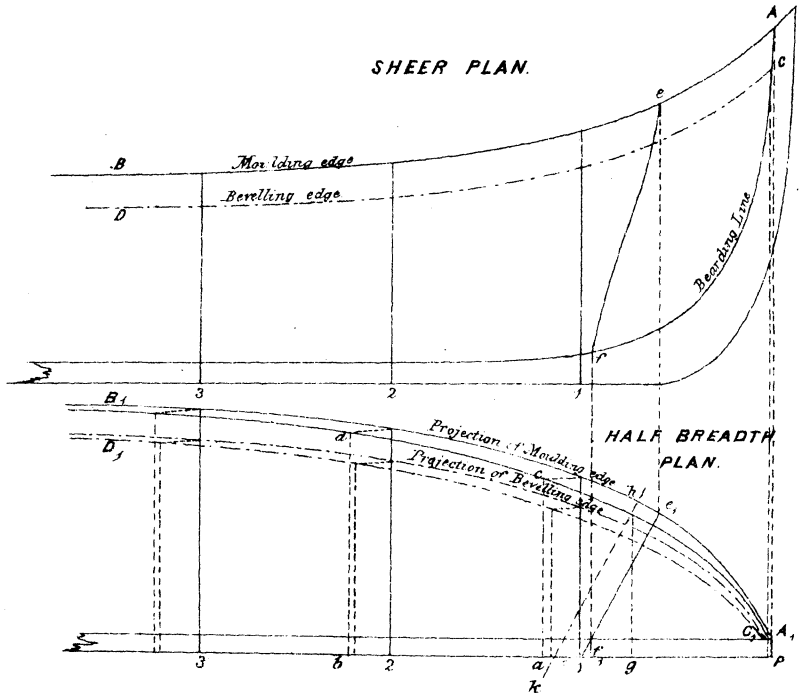


Plate XXXIX

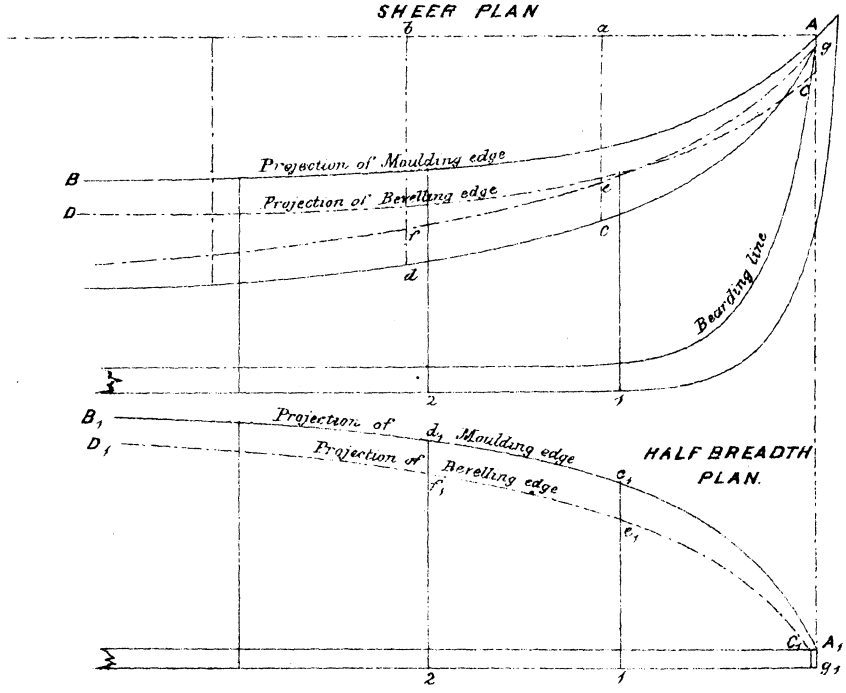


Plate XL

FIG. 2.

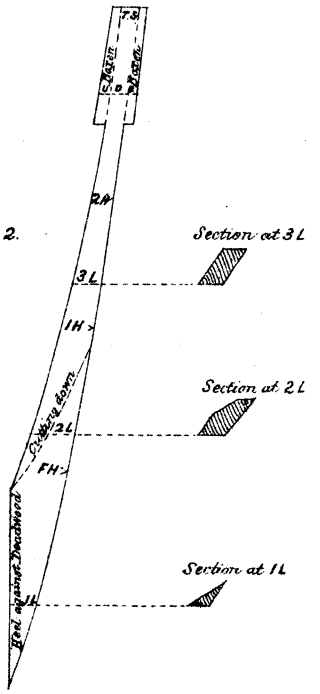


FIG. 1.

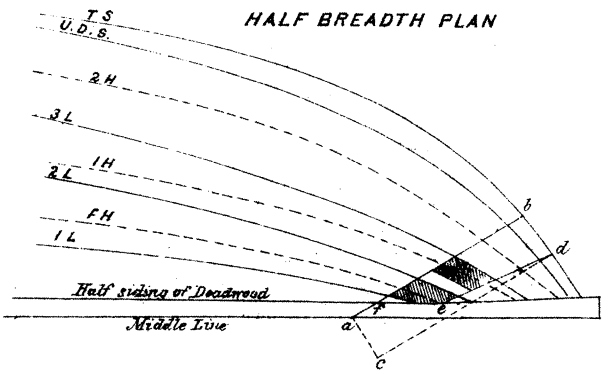


Plate XLI

FIG. 1.

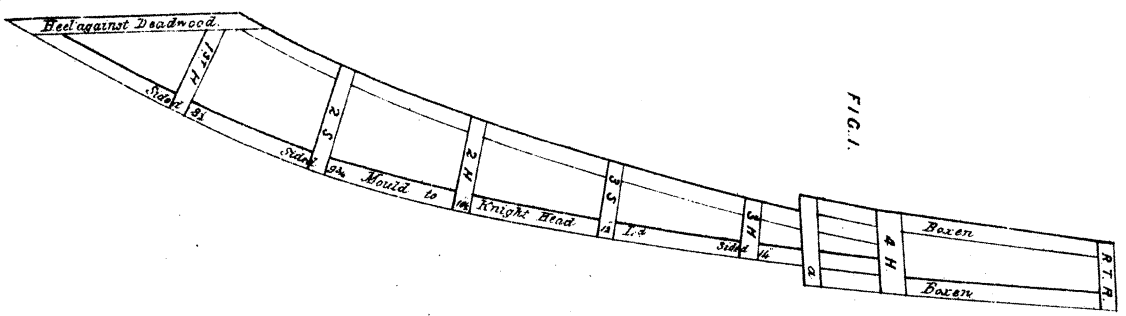


FIG. 2.

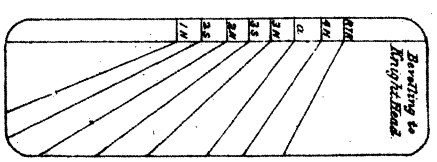


Plate XLII

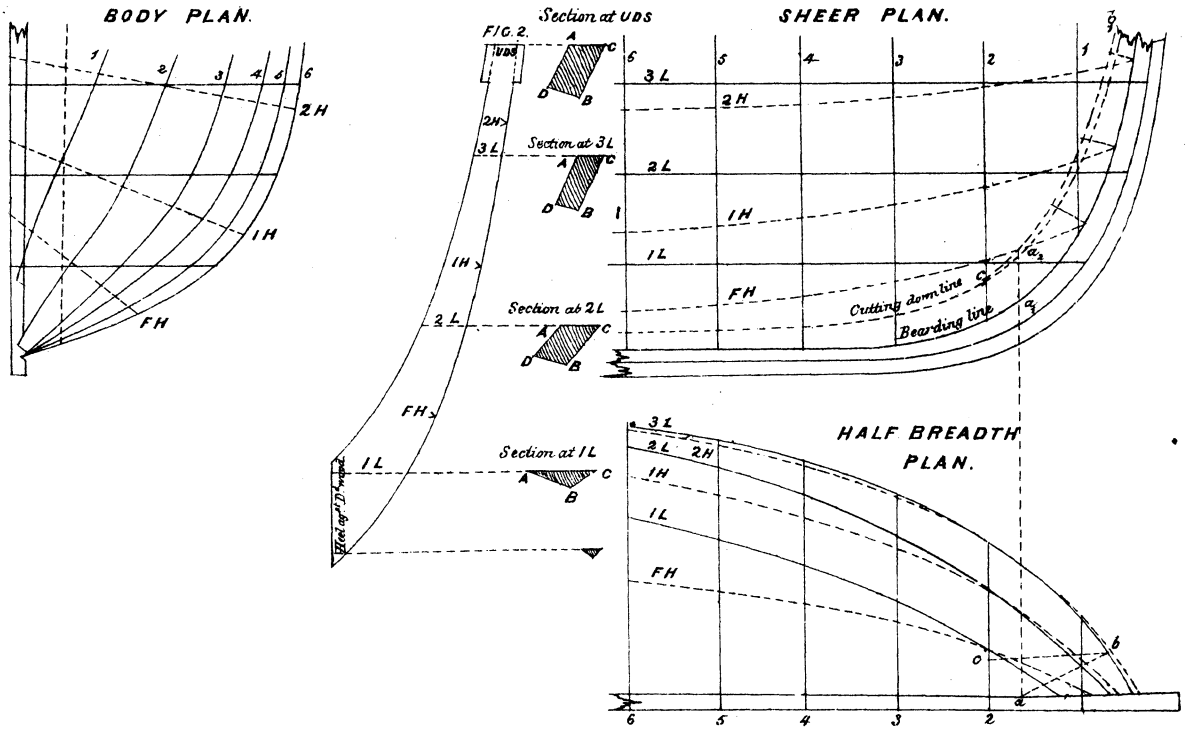


Plate XLIII

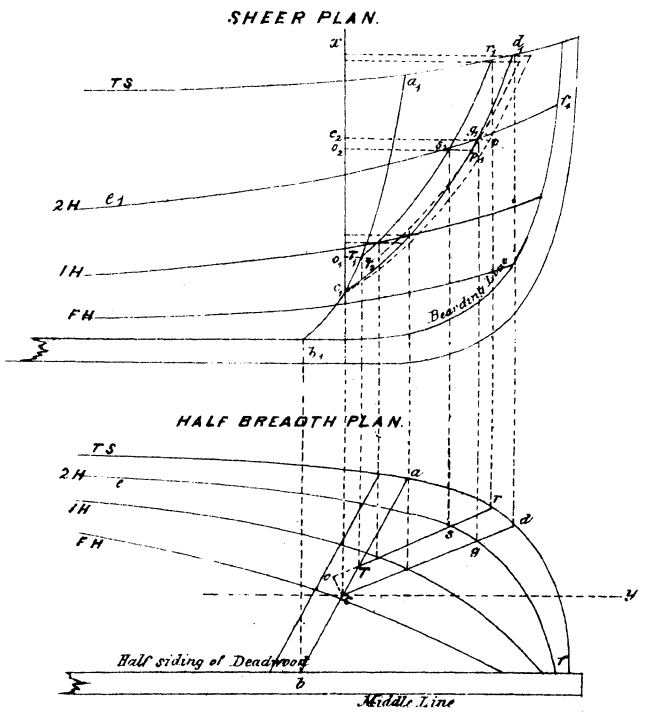


Plate XLIV

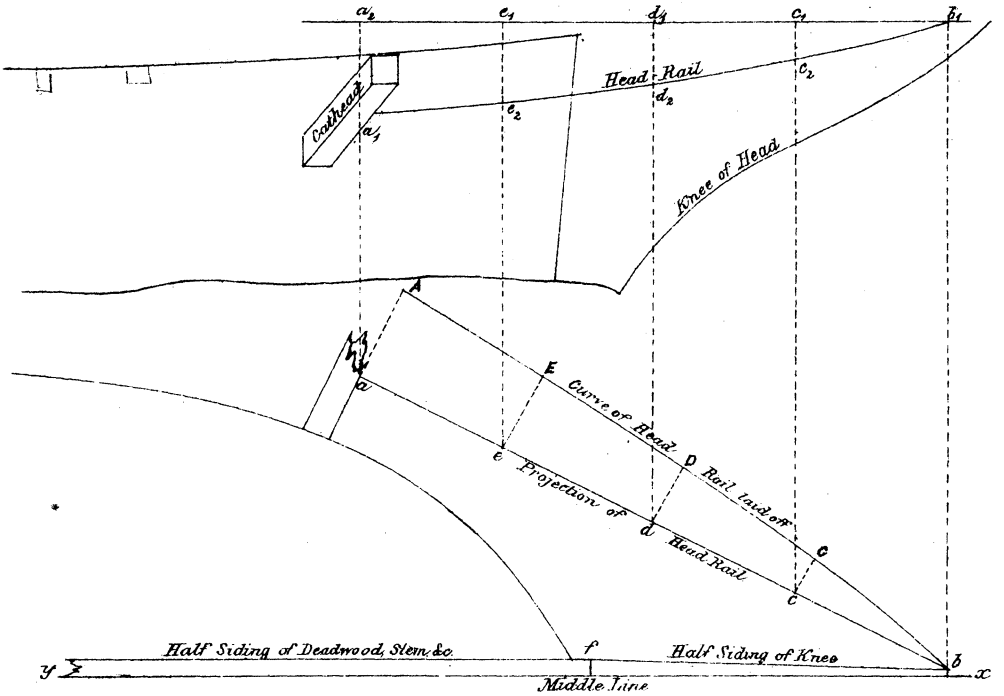
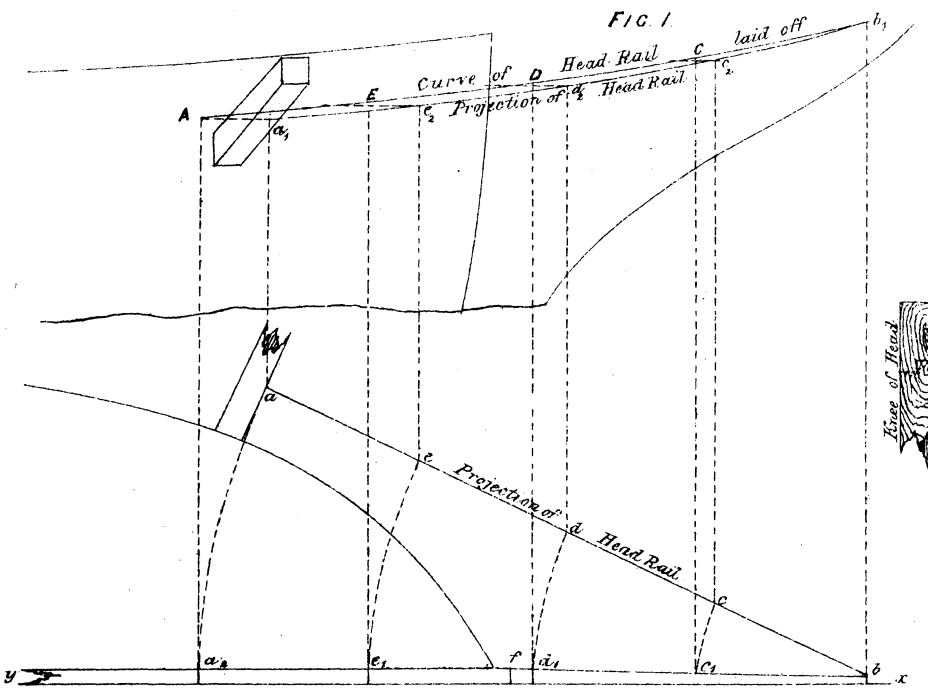


Plate XLV

FIG. 1



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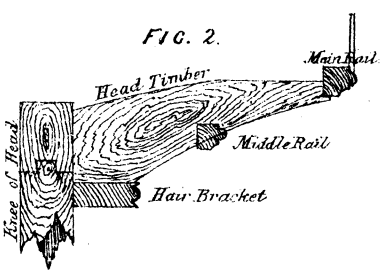


Plate XLVI

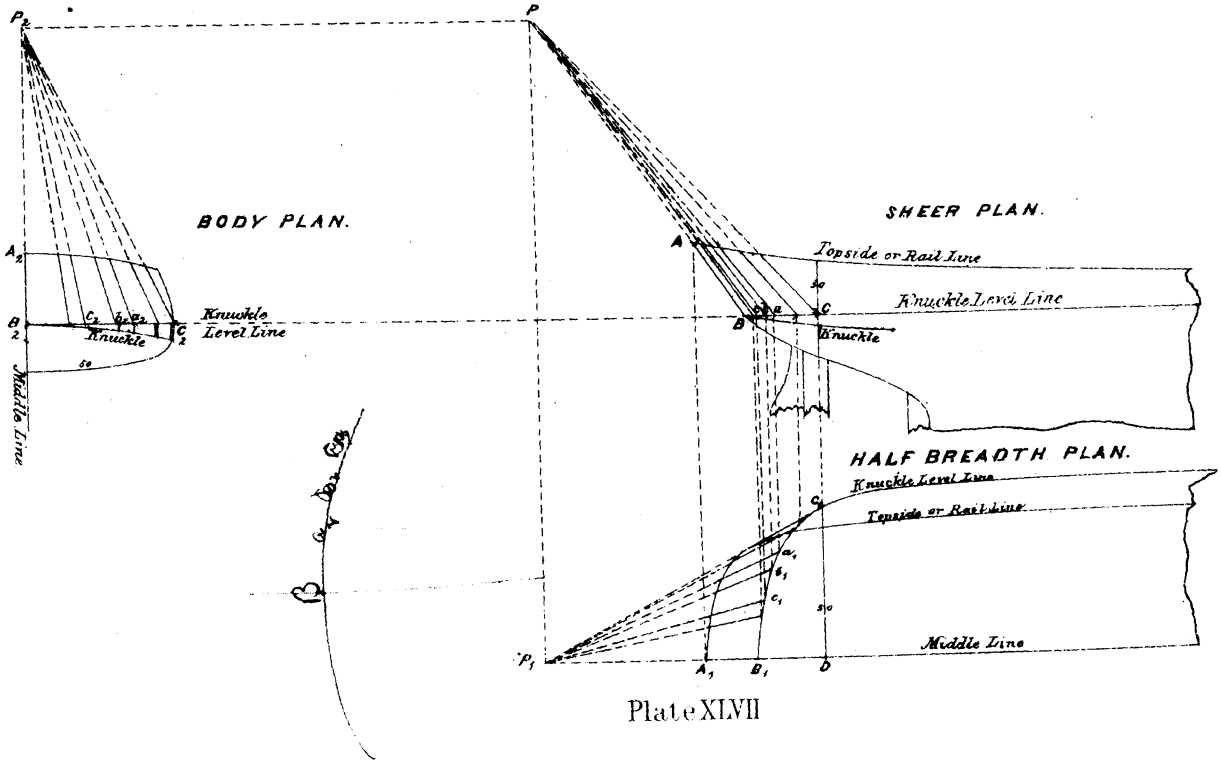


Plate XLVII

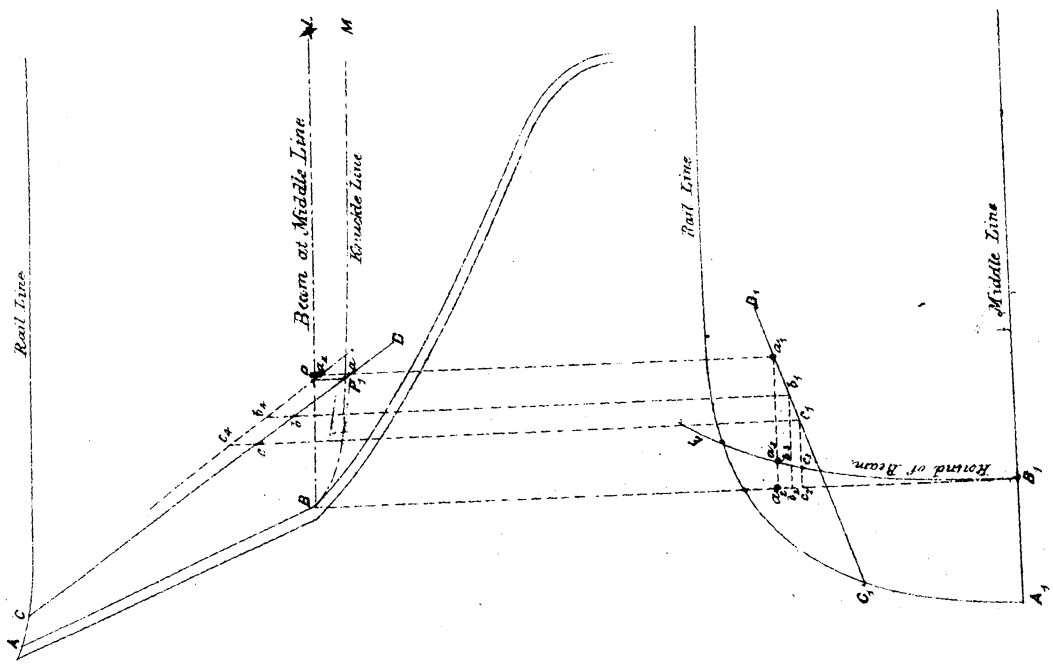


Plate XLVIII

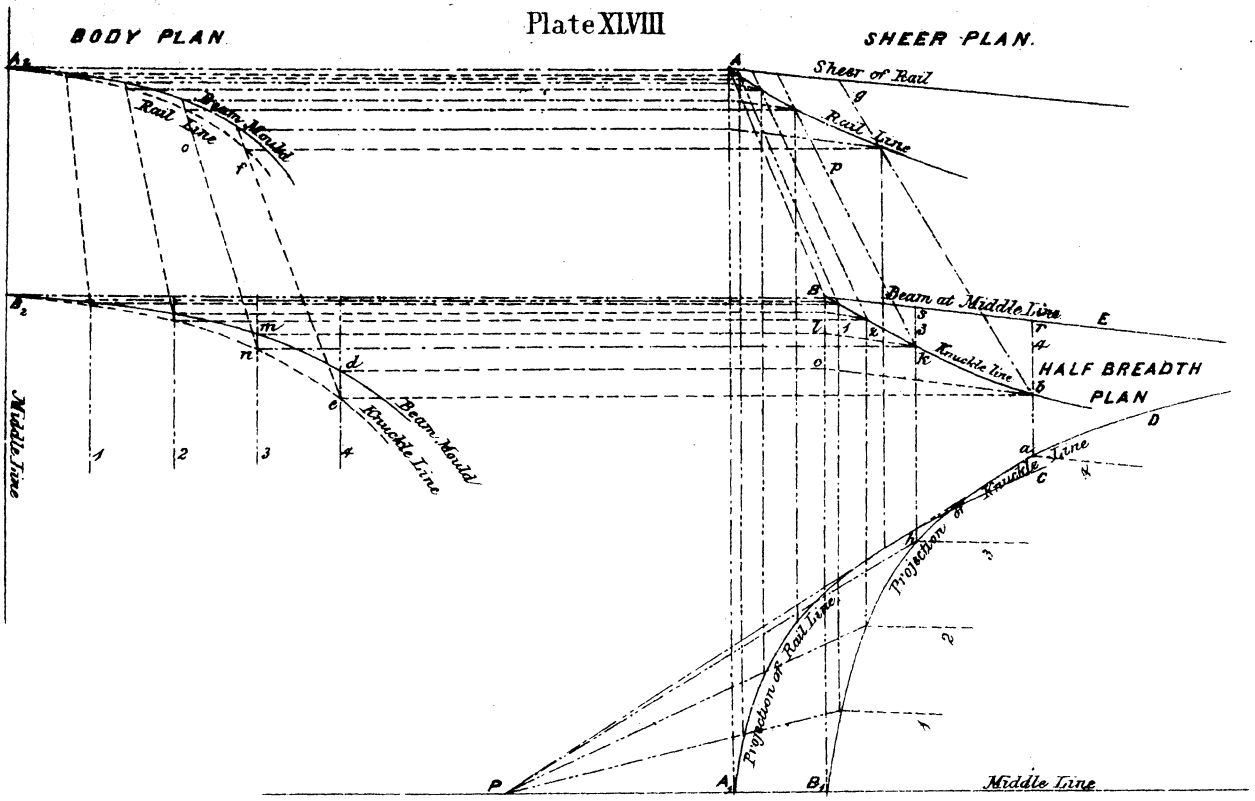


Plate XLIX

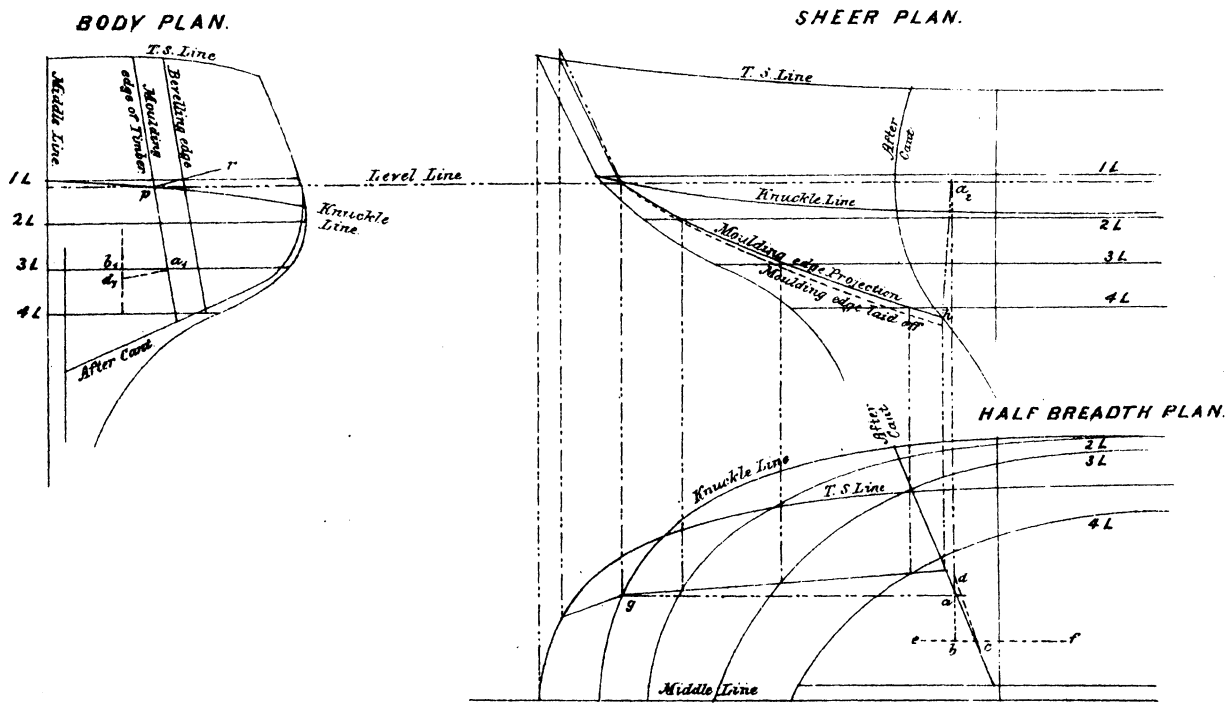
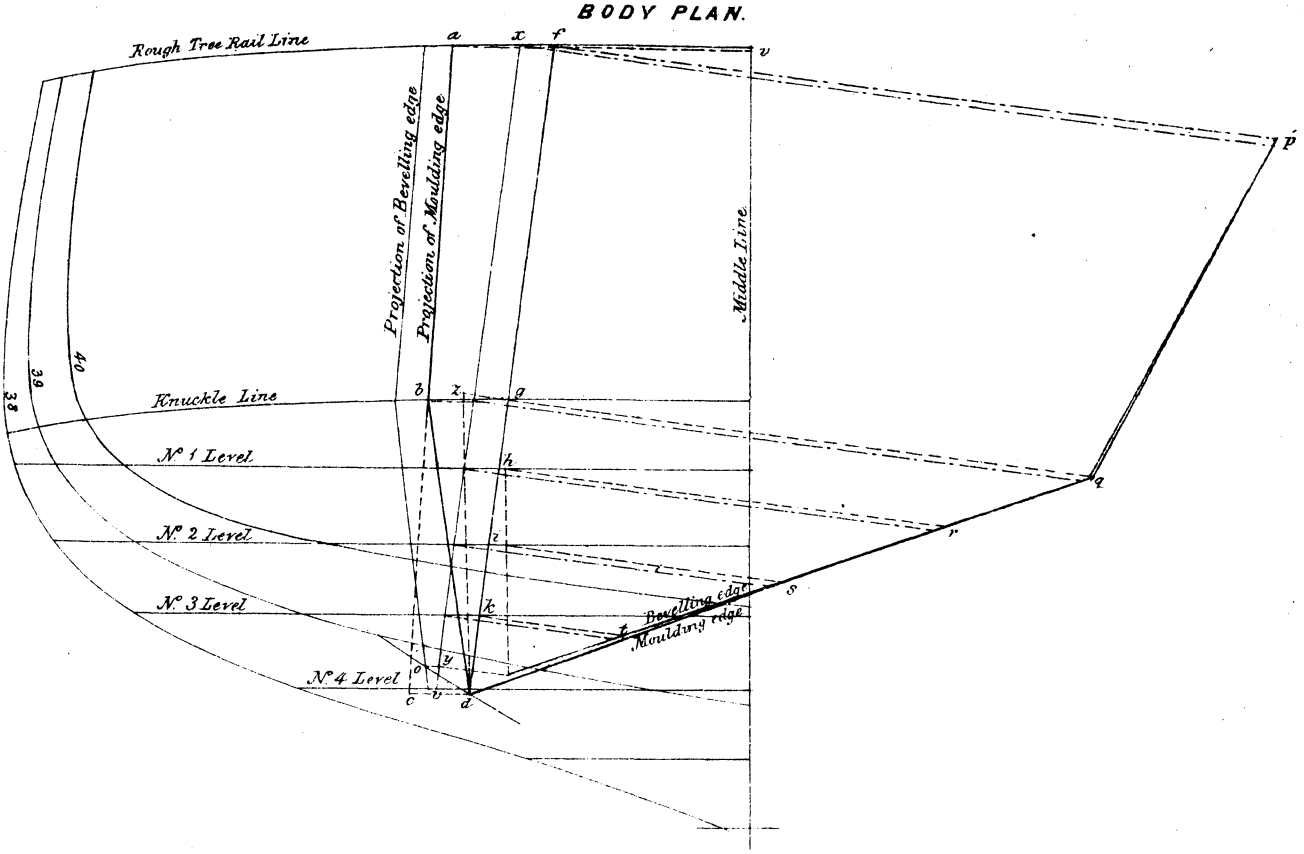


Plate L

BODY PLAN.



HALF BREADTH PLAN.

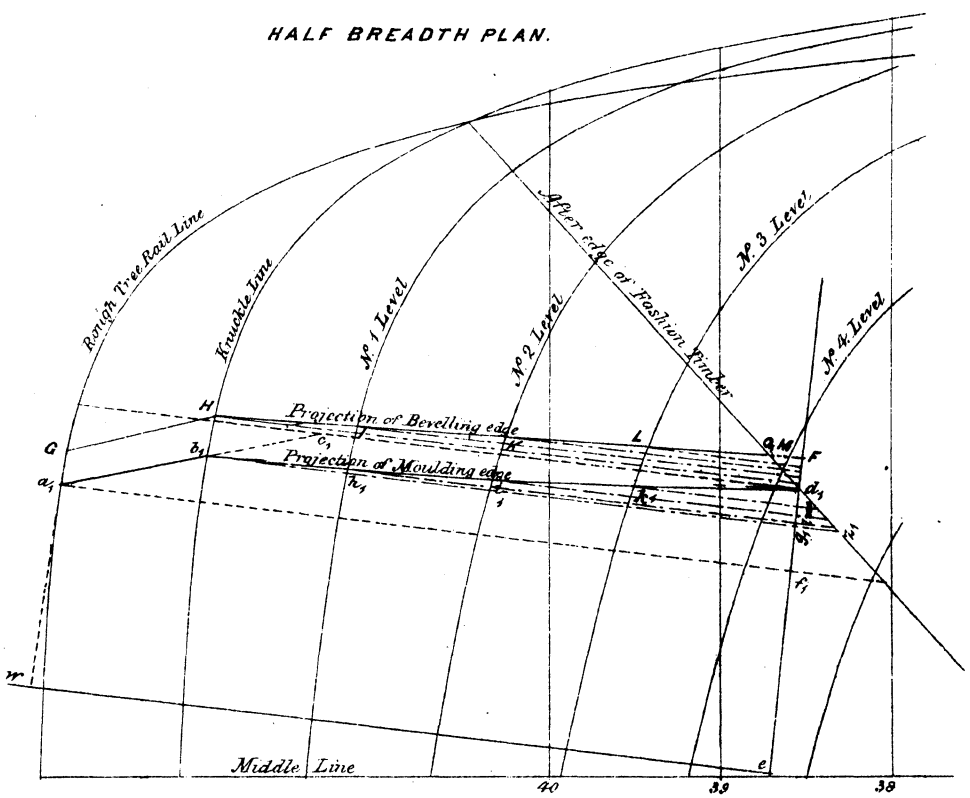


Plate LI

FIG. 1.

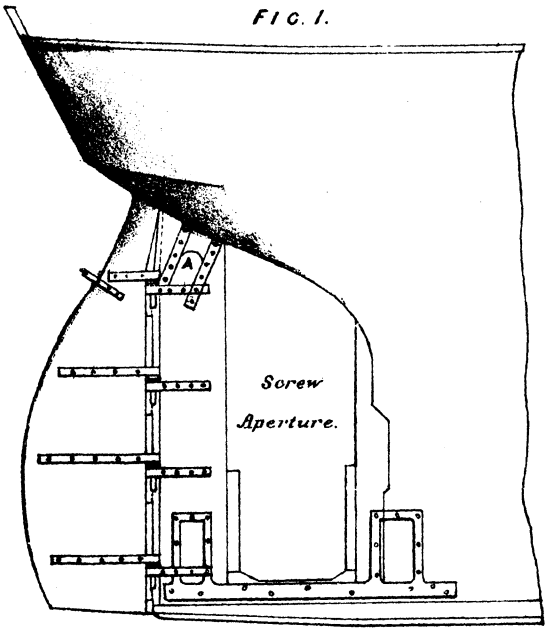


FIG. 2.

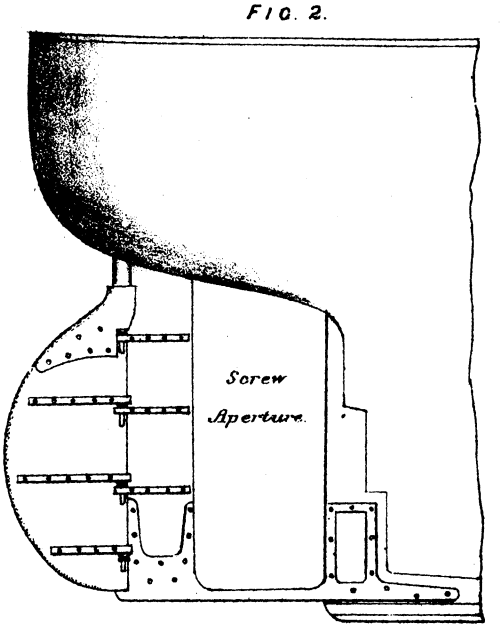


Plate LII

FIG. 1.

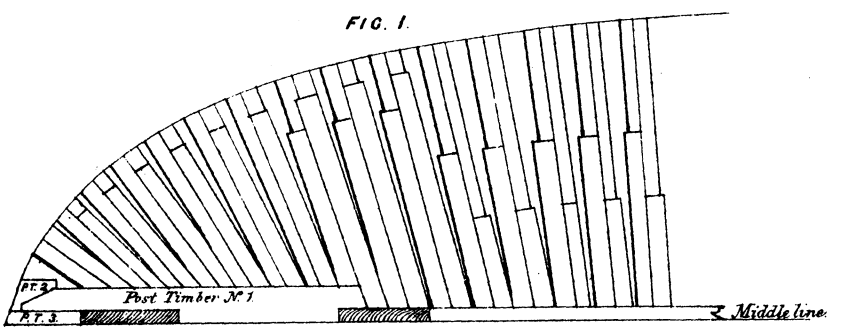


FIG. 2.

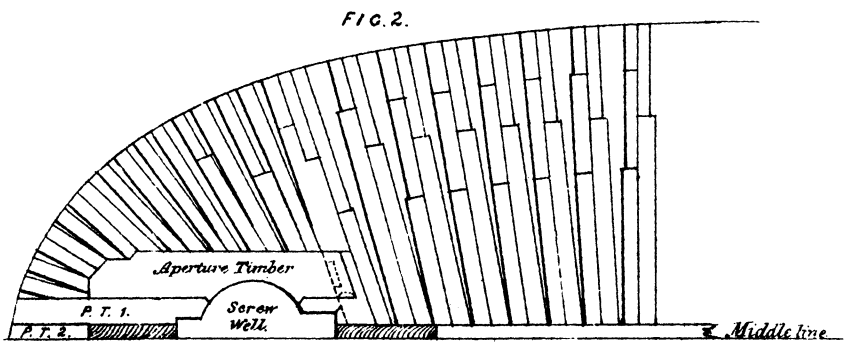
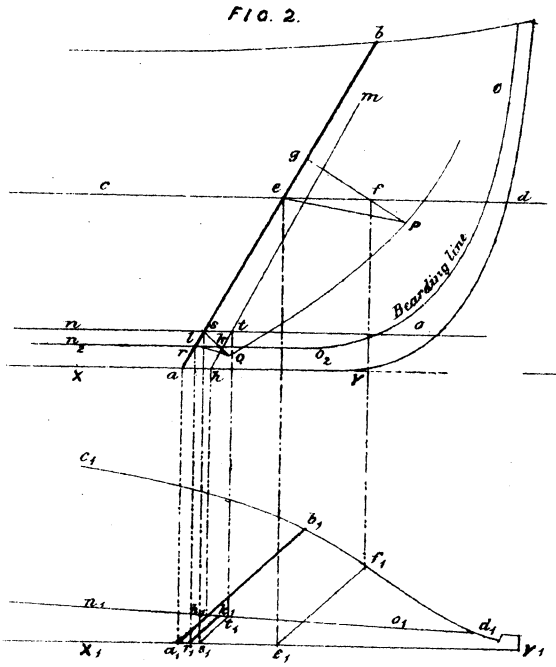


Plate LIII



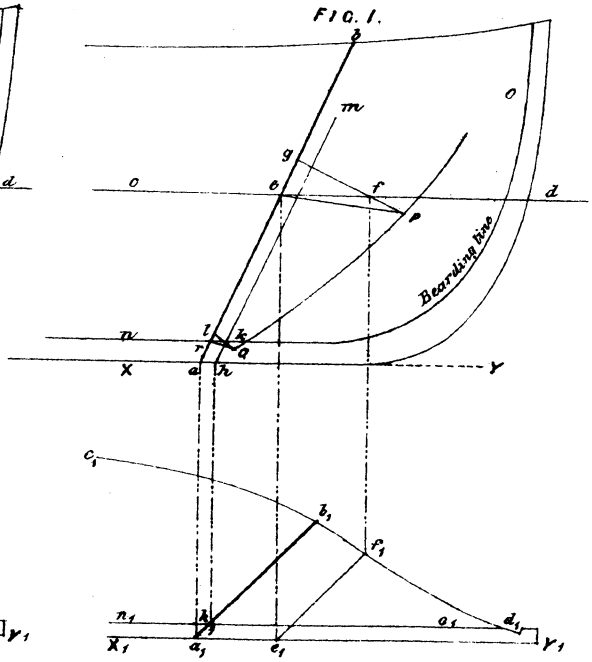
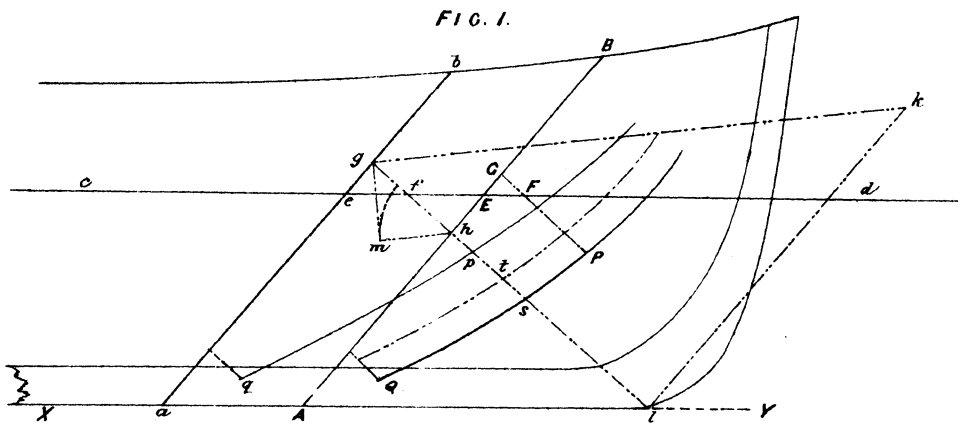


Plate LIV



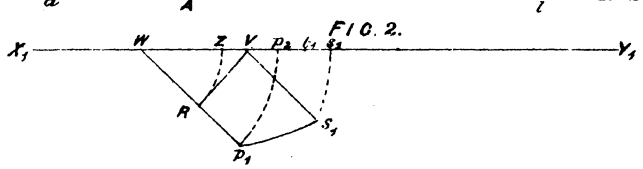


Plate LV

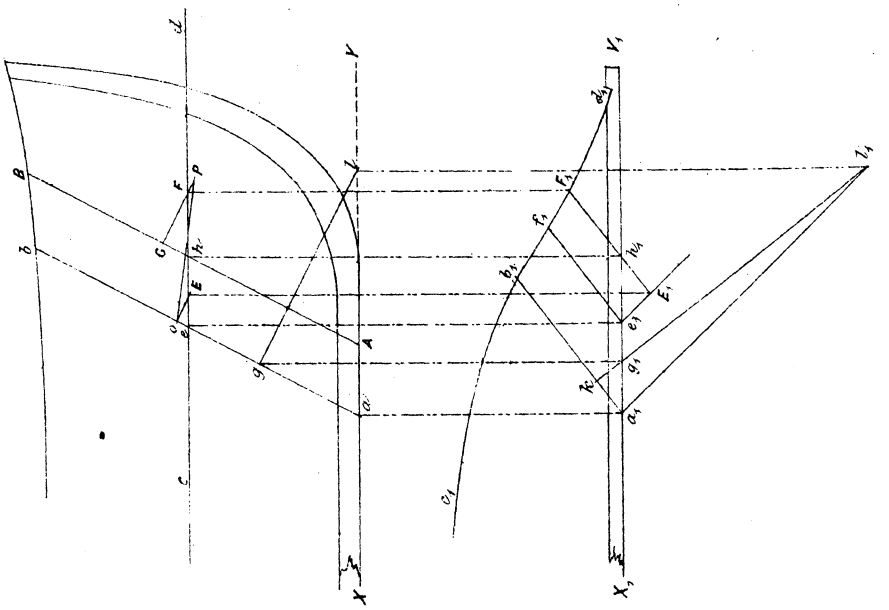
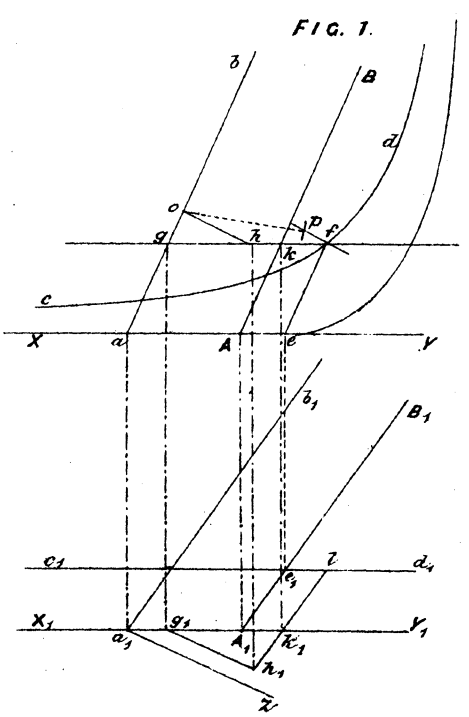


Plate LVI



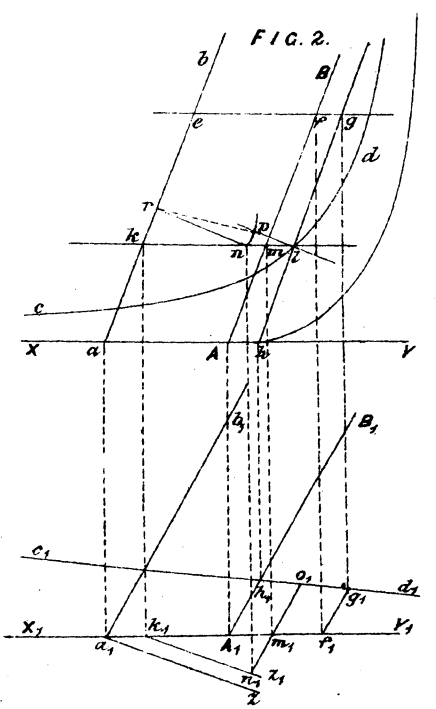


Plate LVII

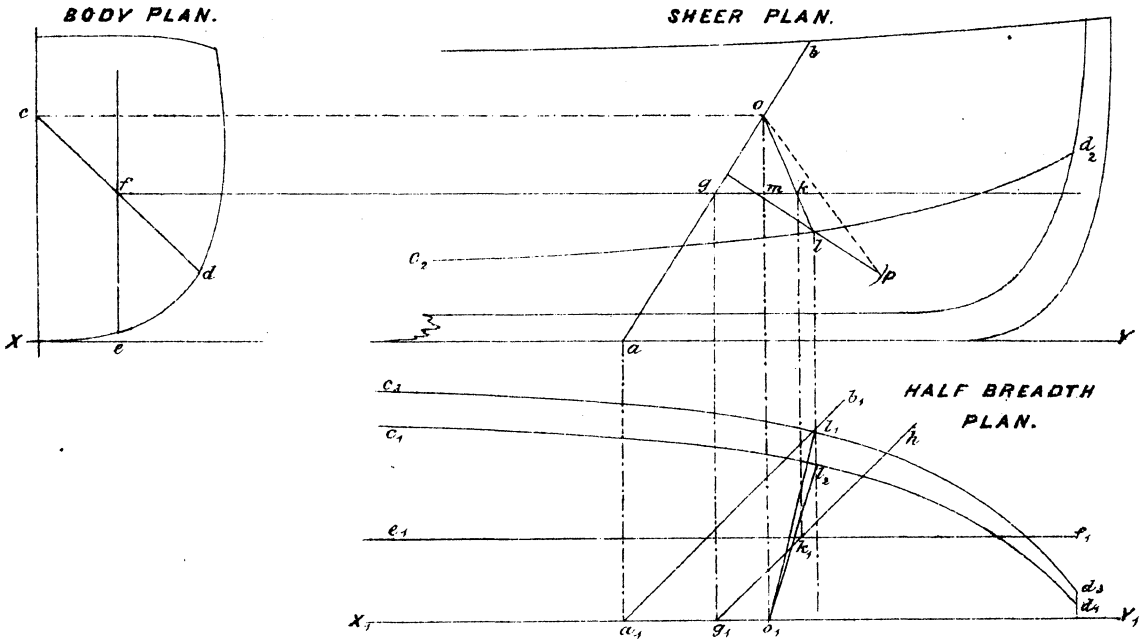


Plate LVIII

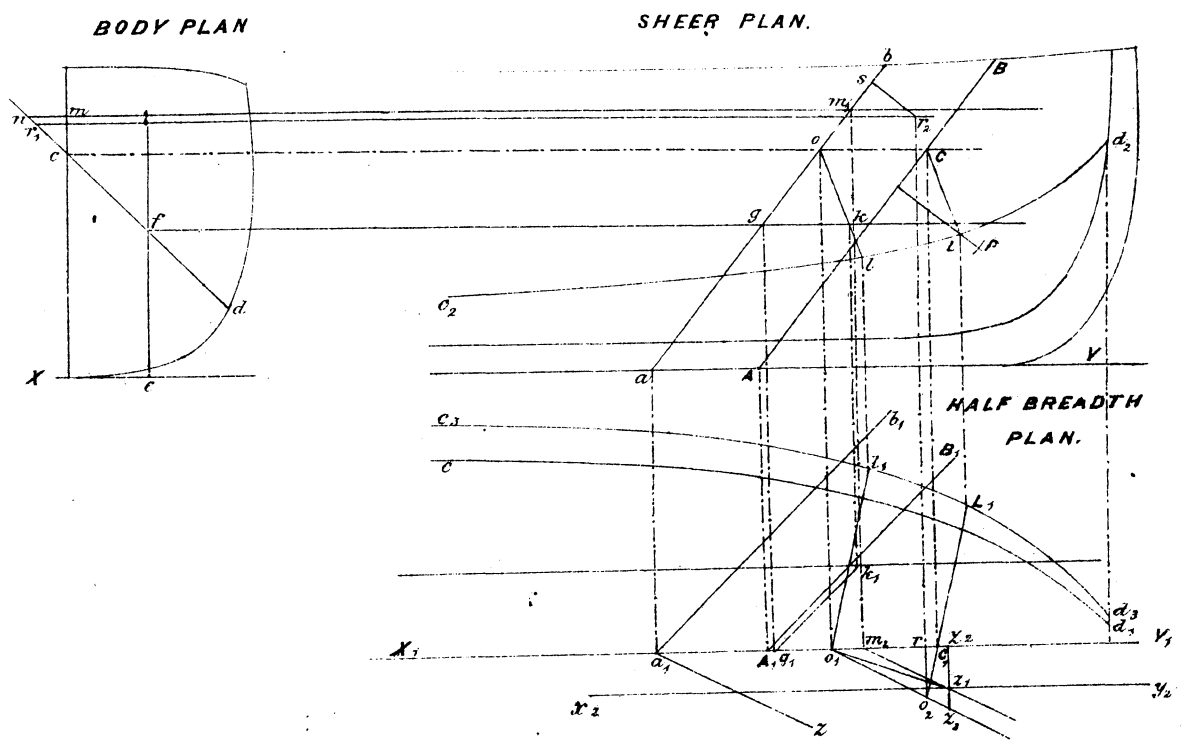


Plate LIX

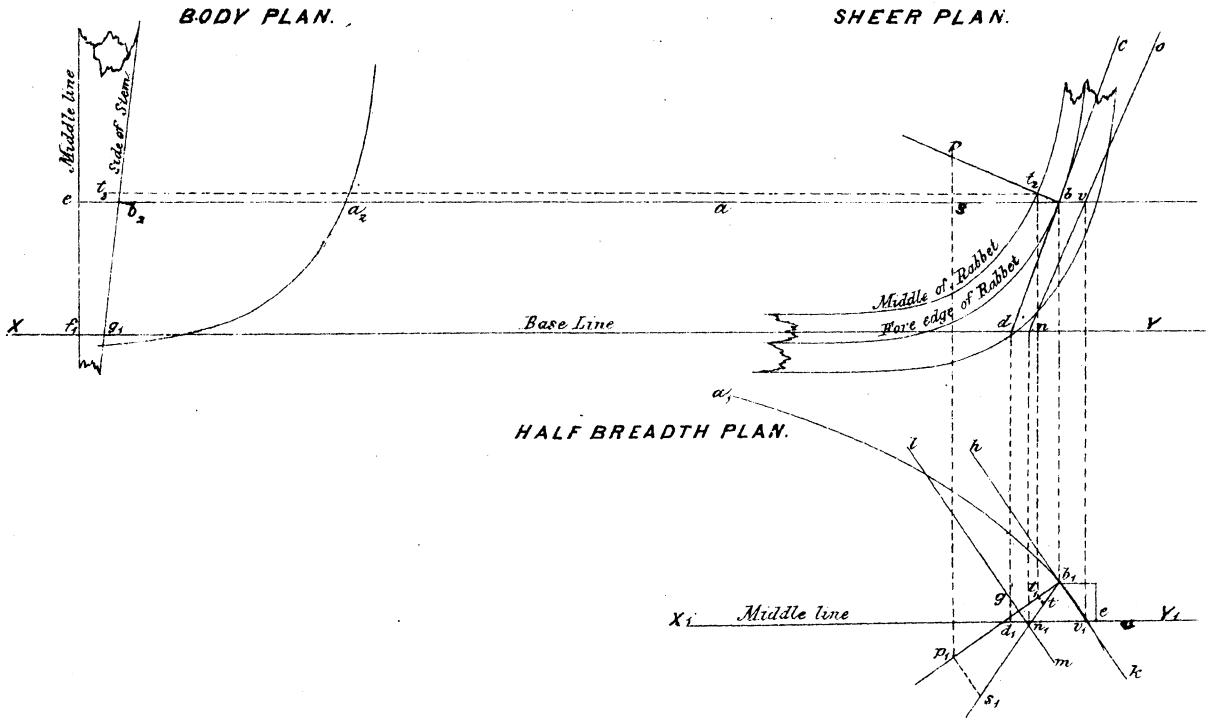


Plate LX

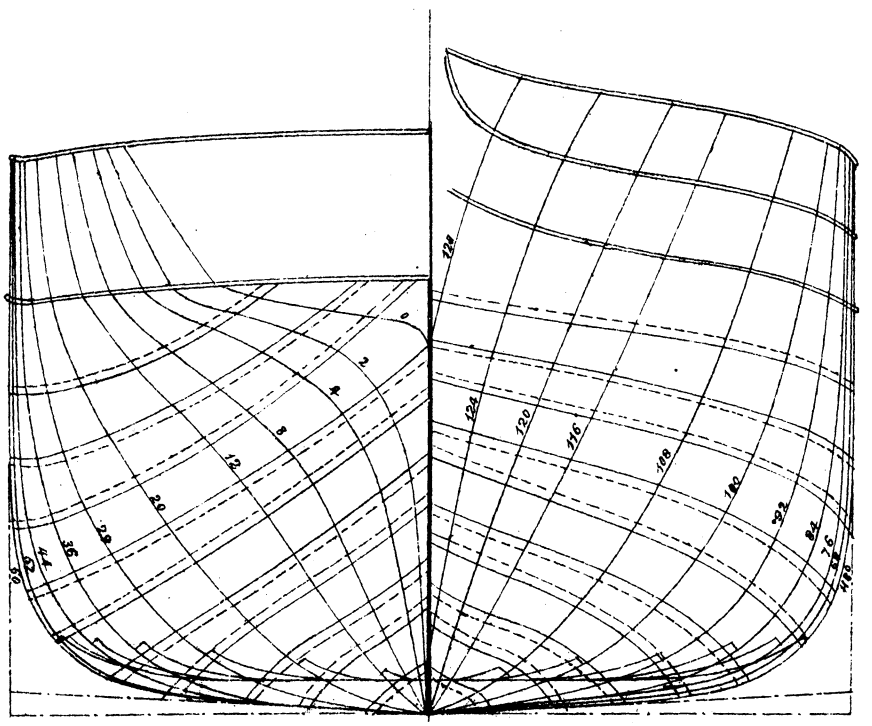


Plate LXI

Plate LXII

After Body of an Ironclad Ship.

Fore Body of an Ironclad Ship.

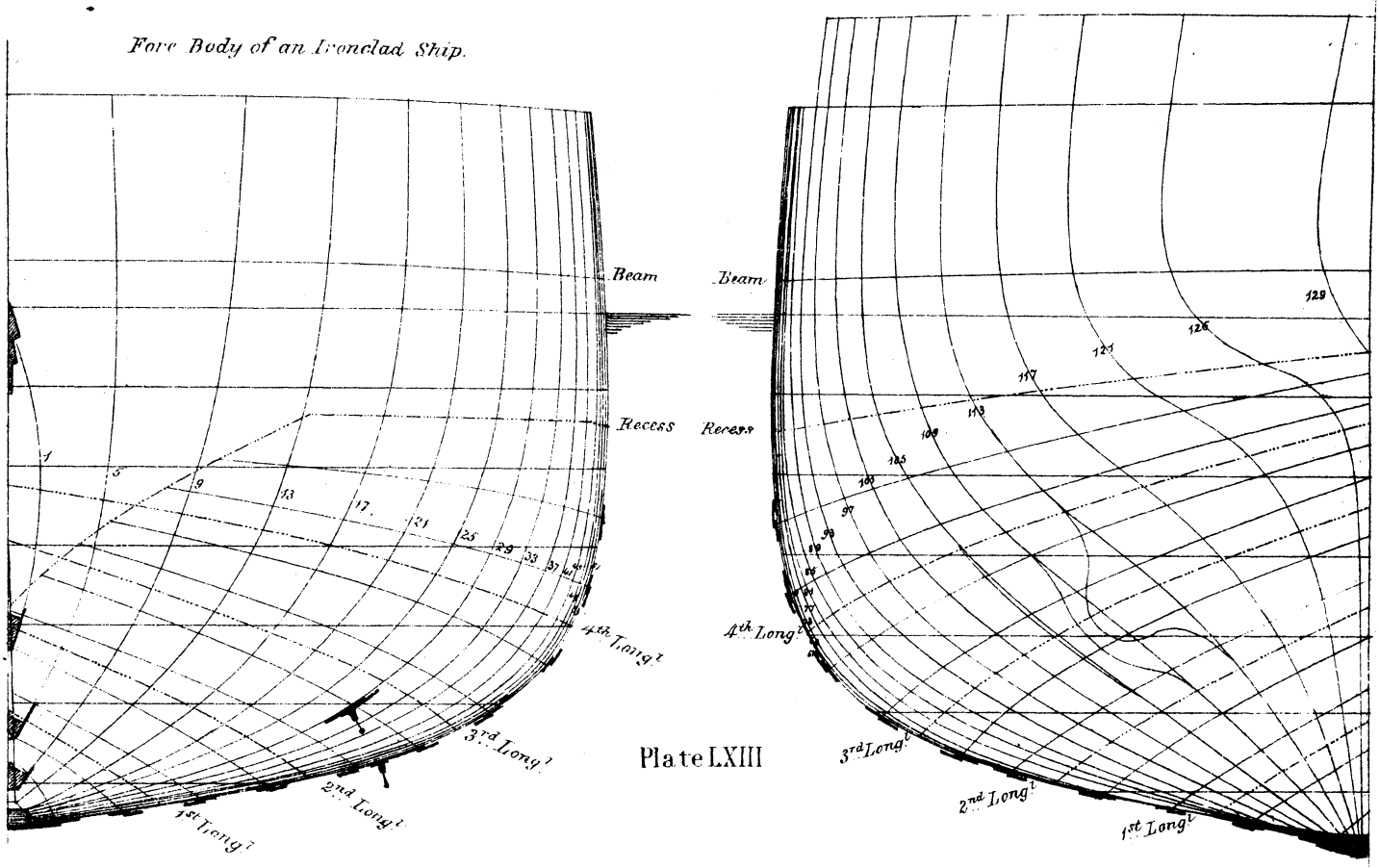


Plate LXIII

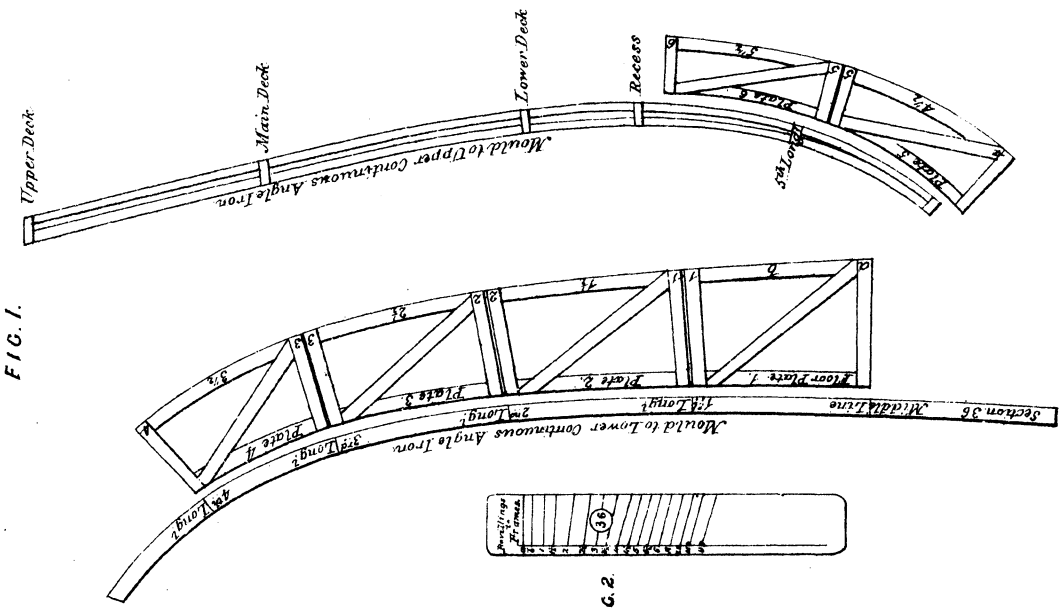


FIG. 1.

FIG. 2.

Plate LXIV

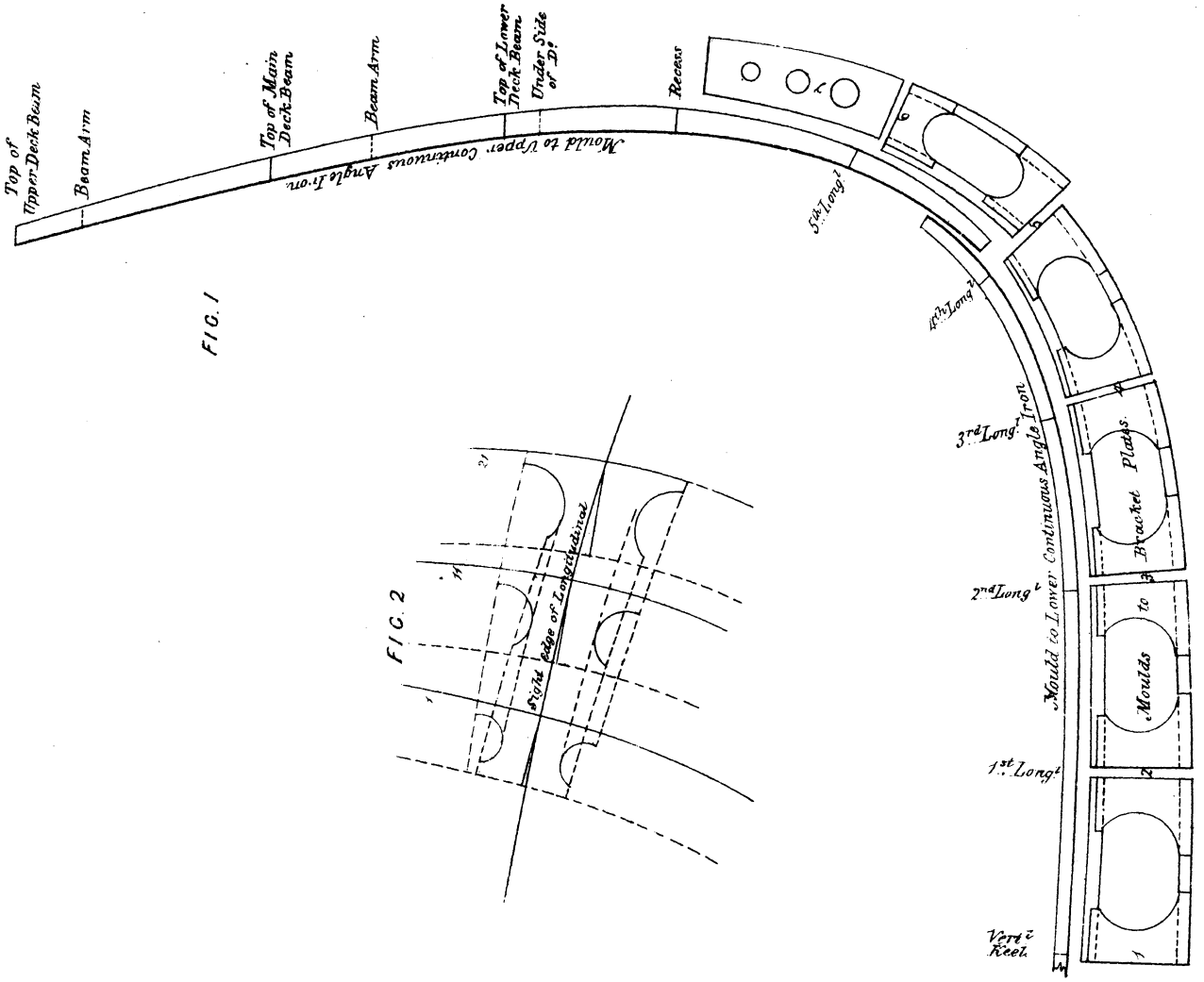


Plate LXV

FIG. 1

Beam Mould.

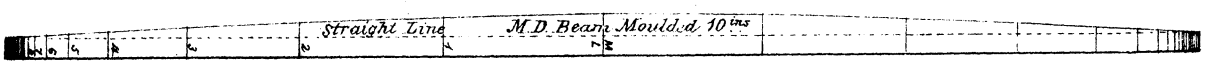


FIG. 2.

Scantling Batten

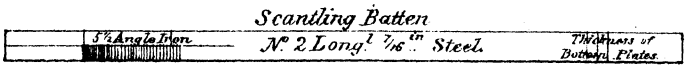


FIG. 3.

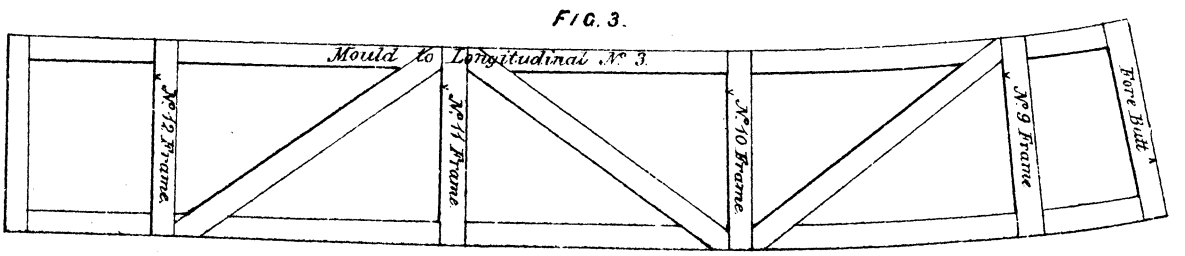


Plate LXVI

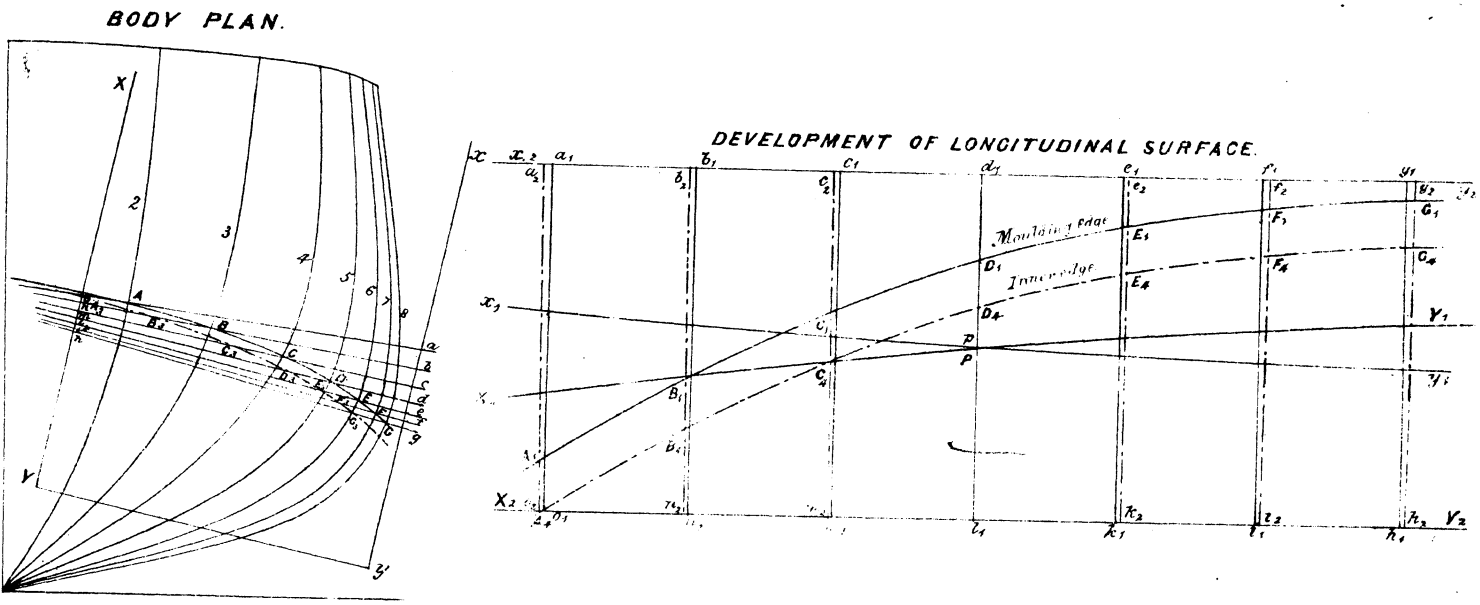
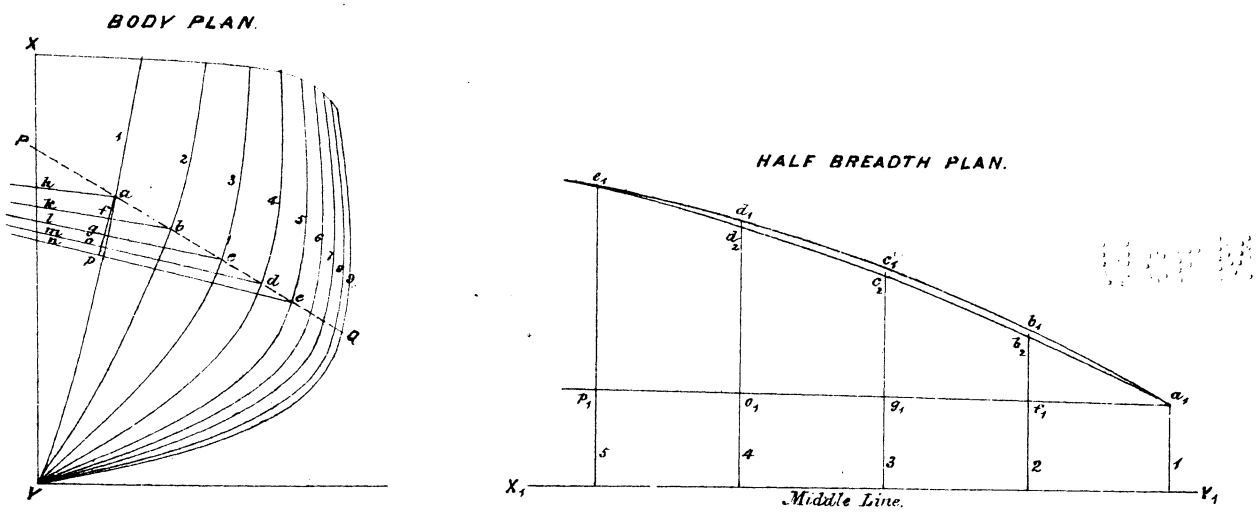


Plate LXVII



Mail

Plate LXVIII

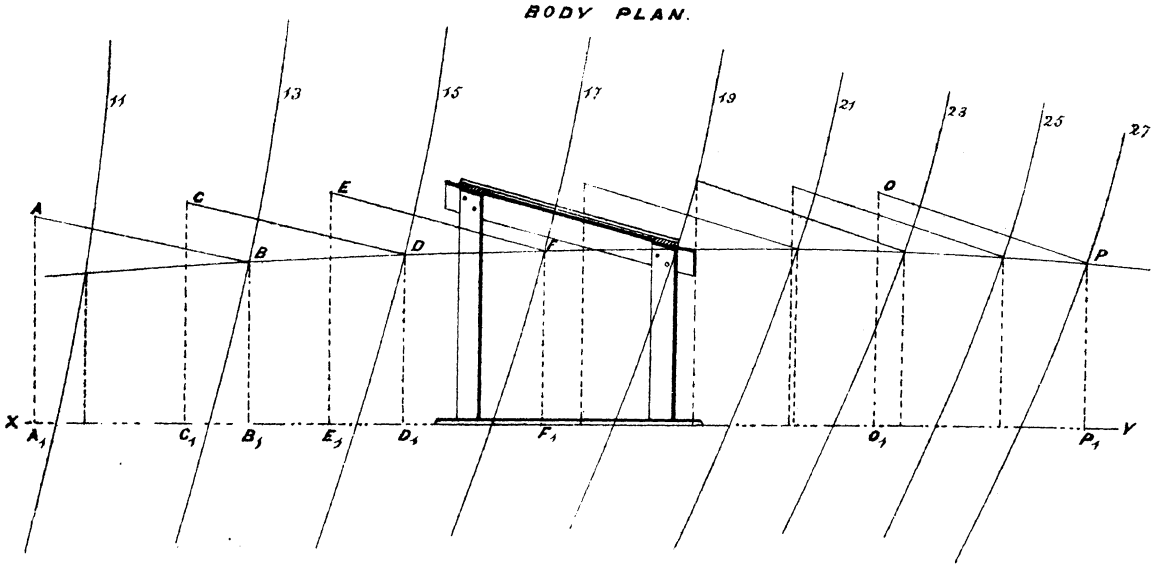


Plate LXIX

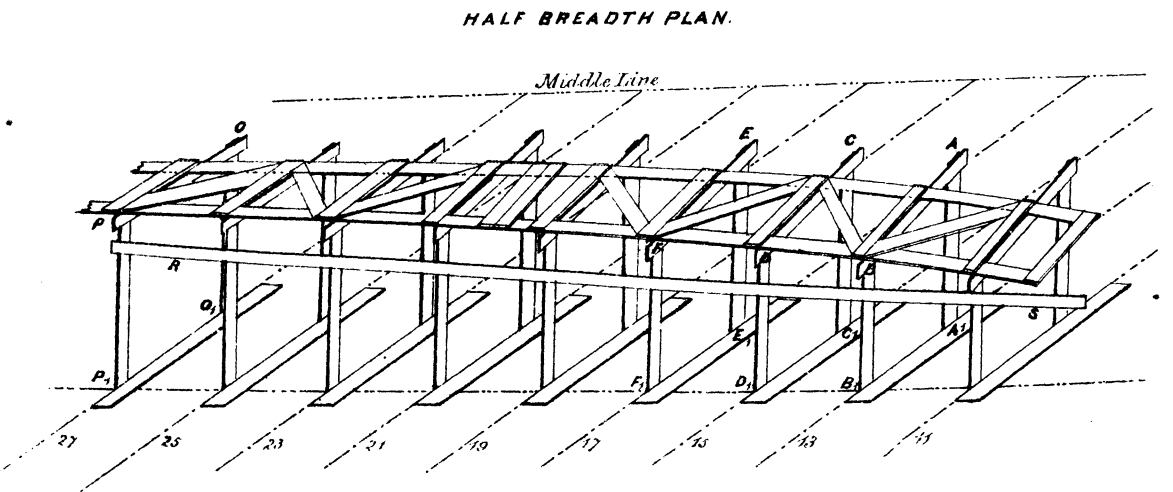


Plate LXX.

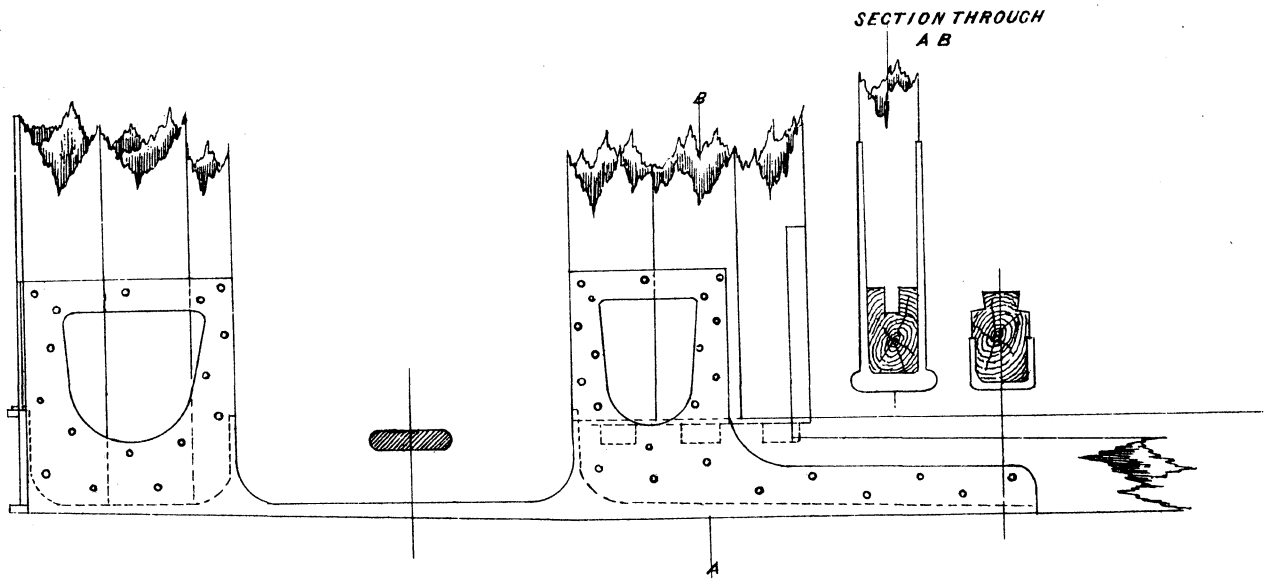


Plate LXXI

FIG. 1.

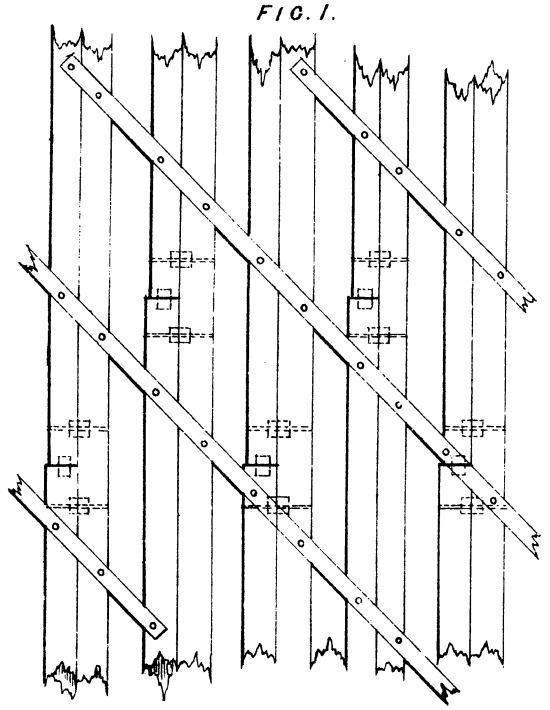


FIG. 2.

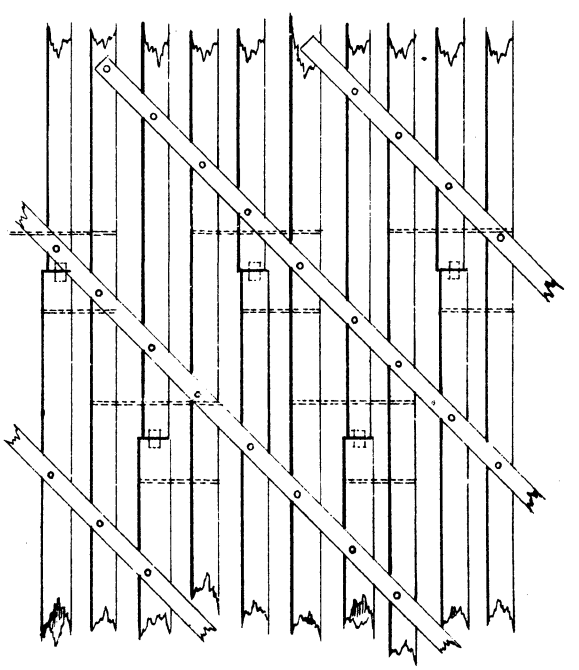


Plate LXXII

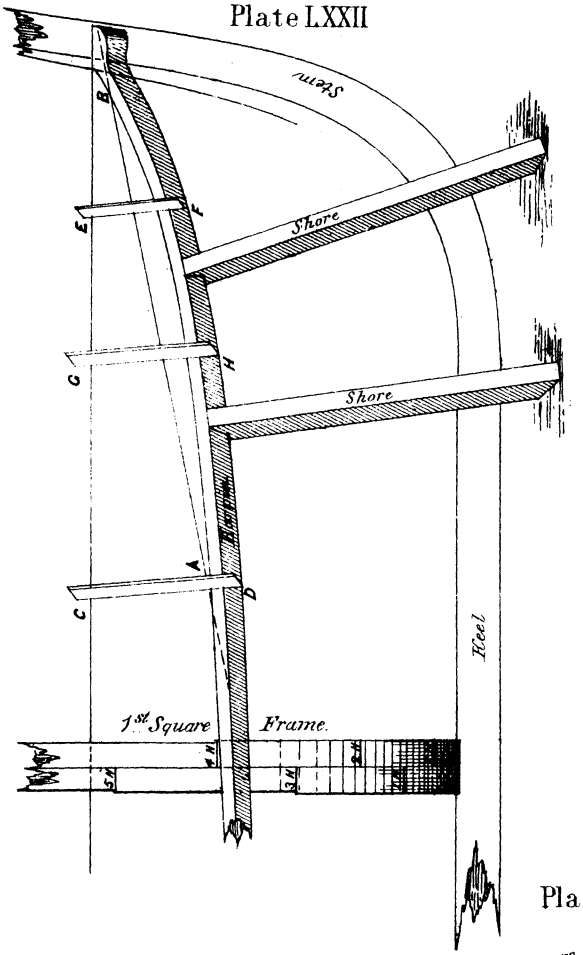


Plate LXXIII

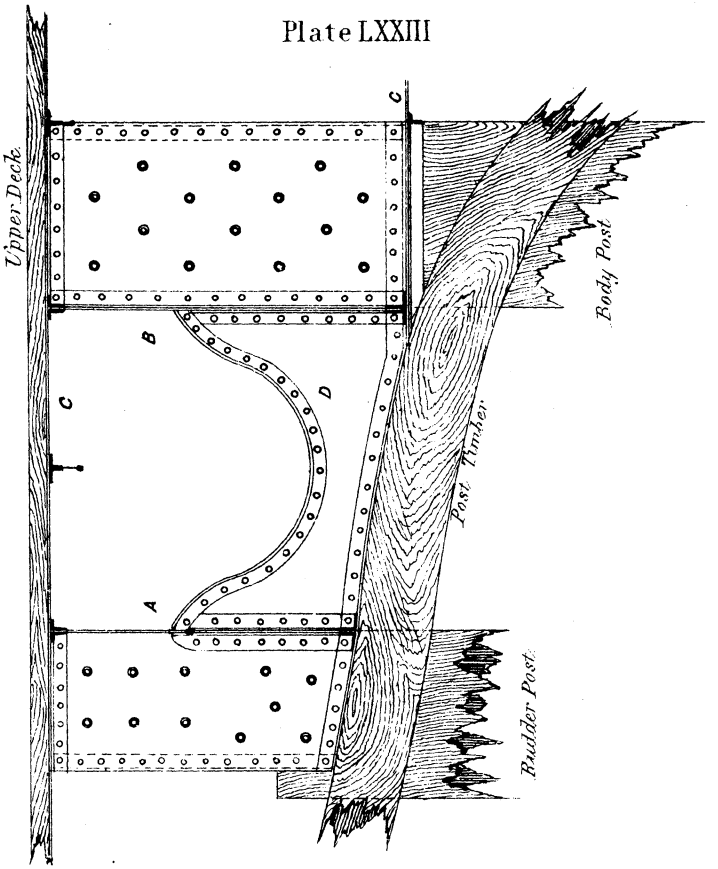


Plate LXXIV

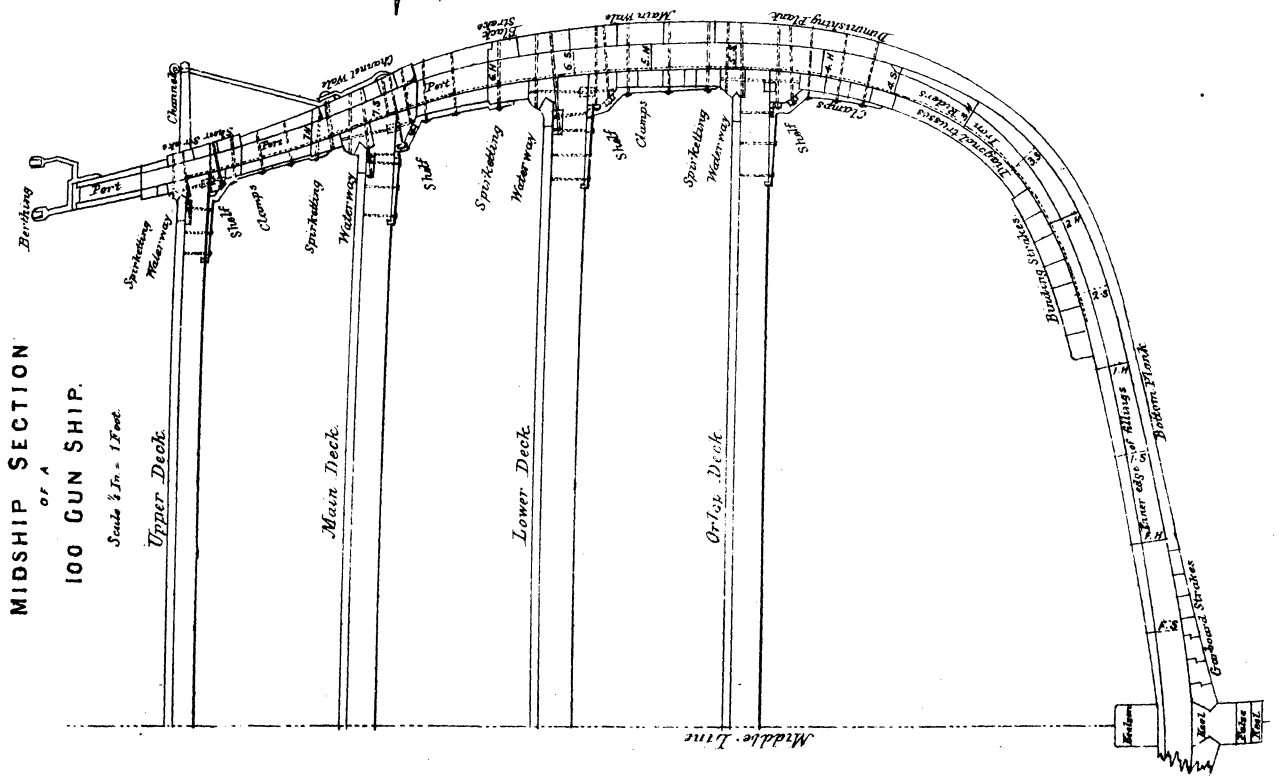


Plate LXXV

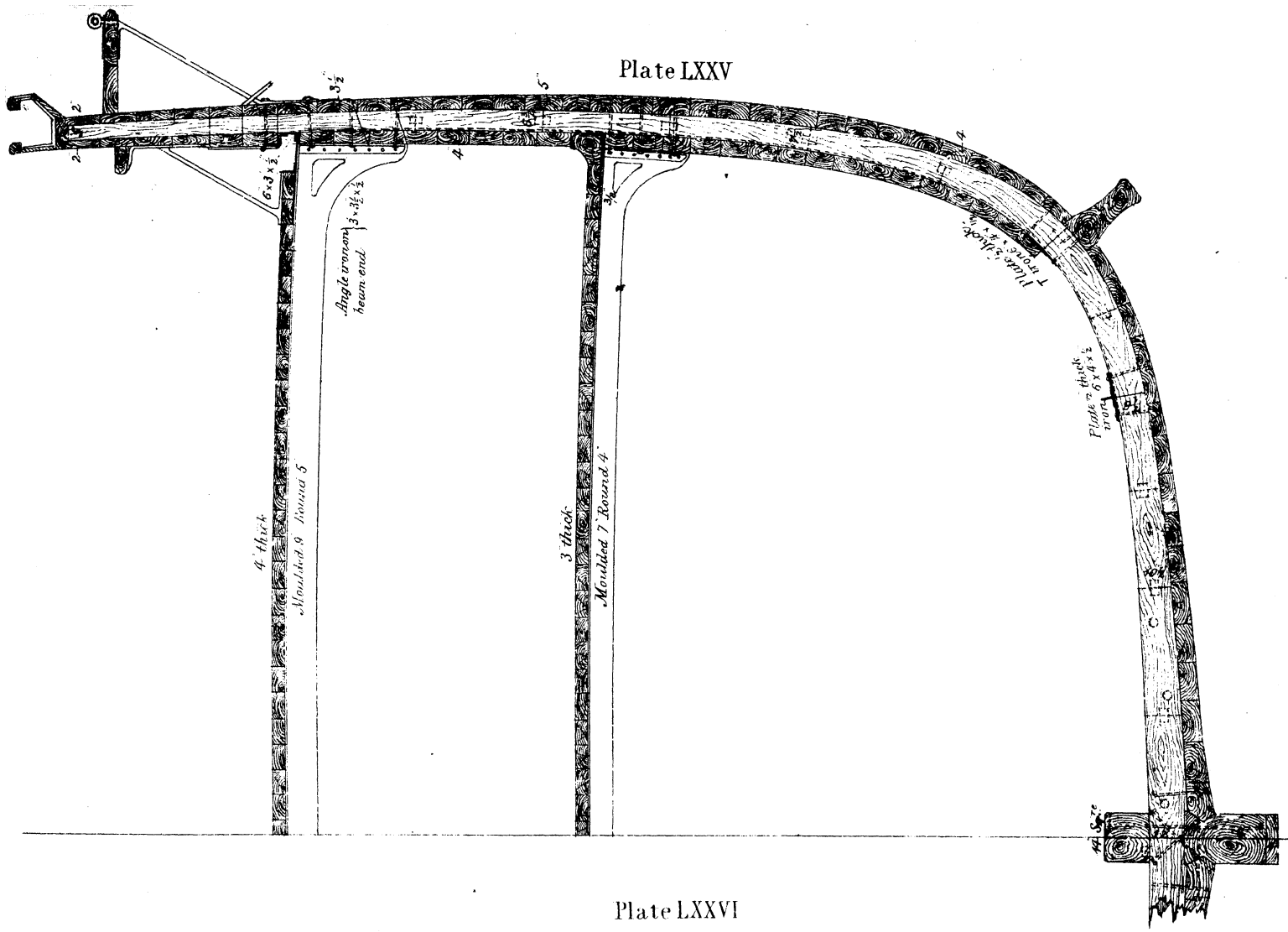


Plate LXXVI

FIG. 2.

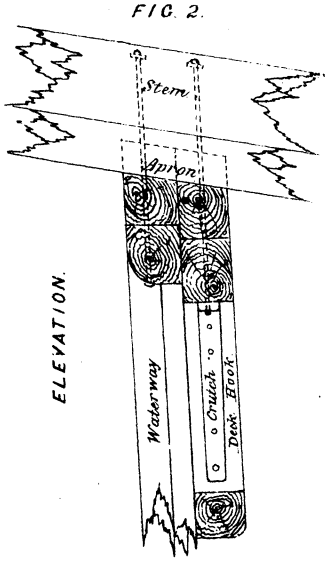


FIG. 1

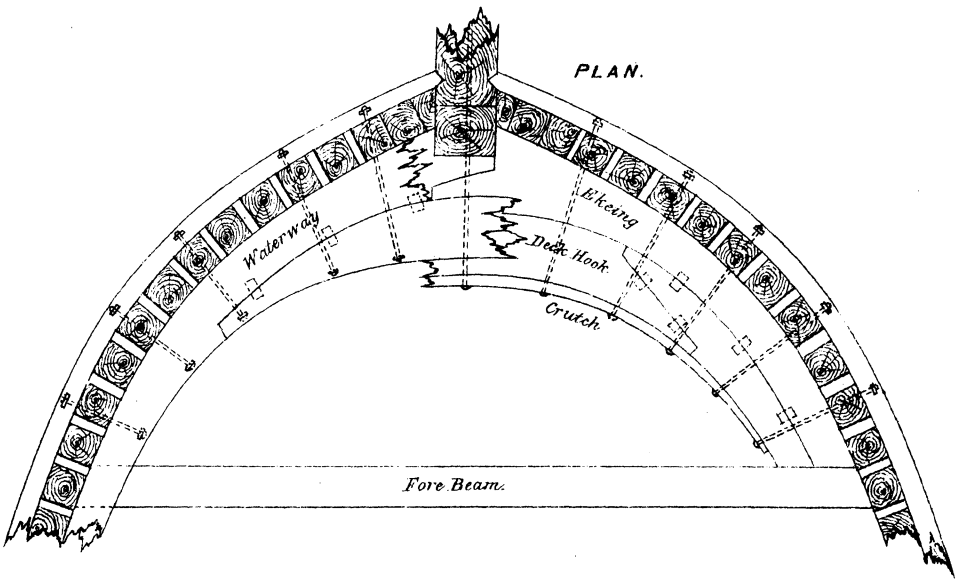


Plate LXXVII

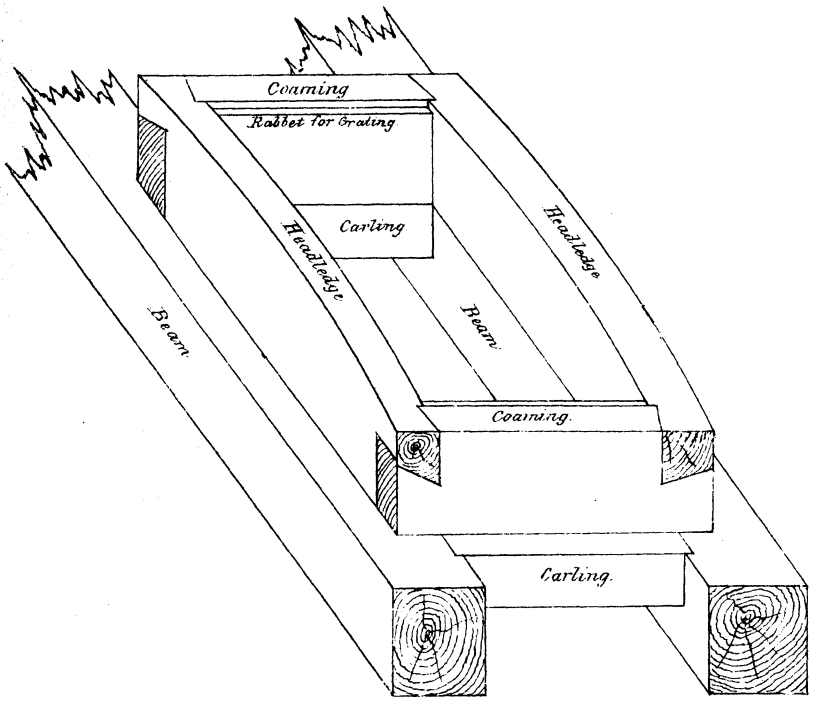


Plate LXXVIII

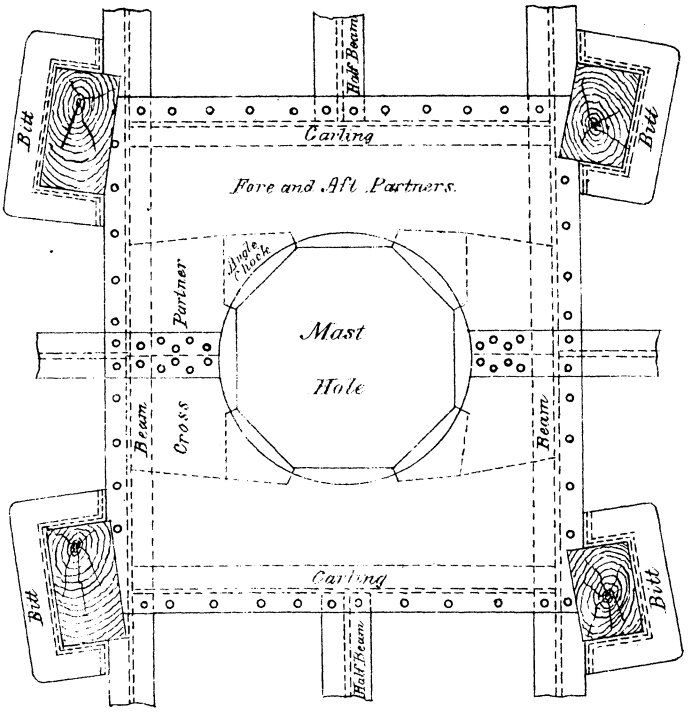


Plate LXXIX

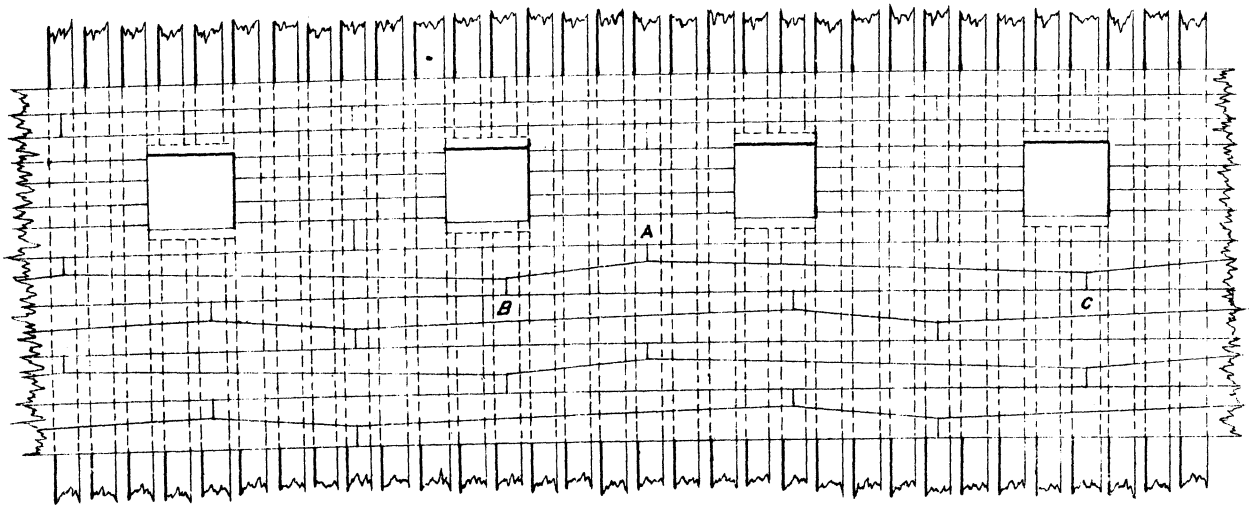


Plate LXXX

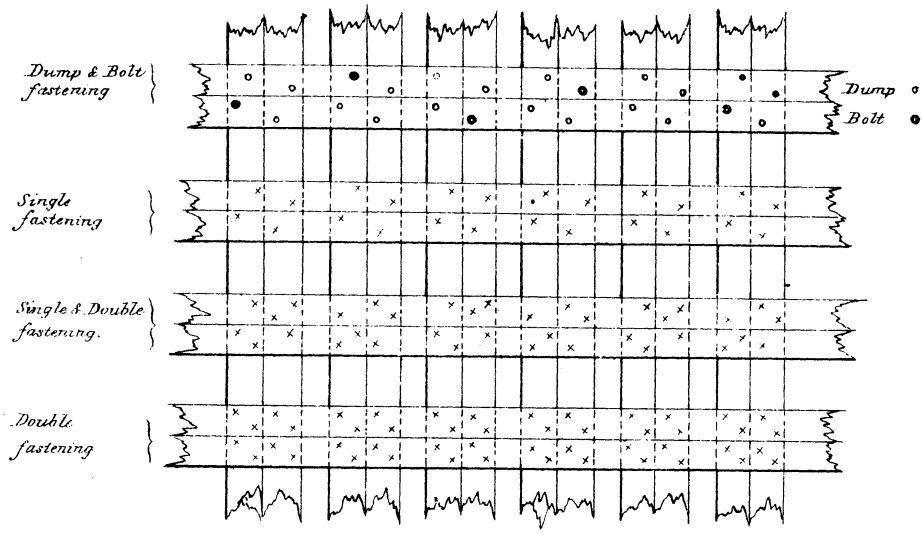


Plate LXXXI

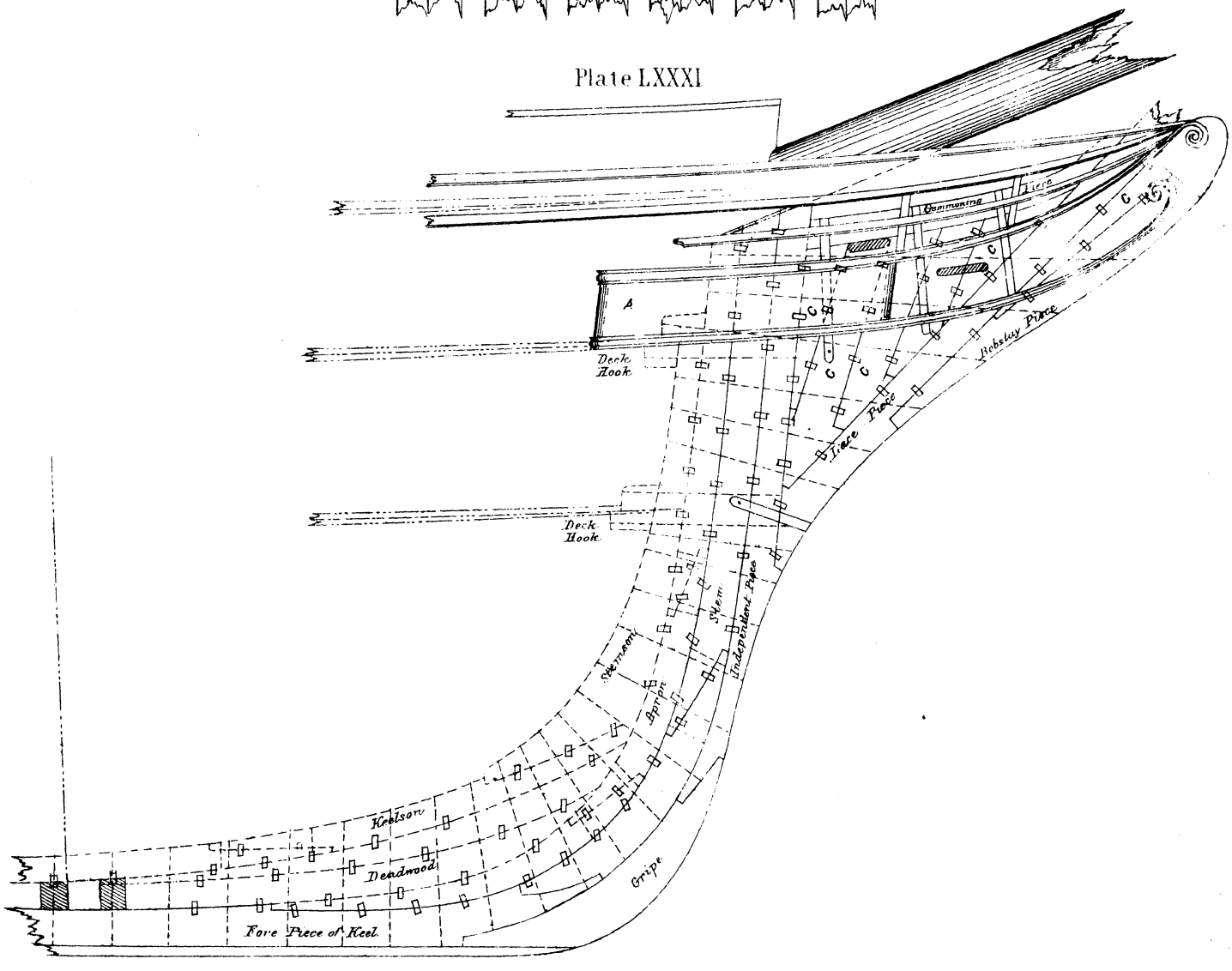


FIG. 1.

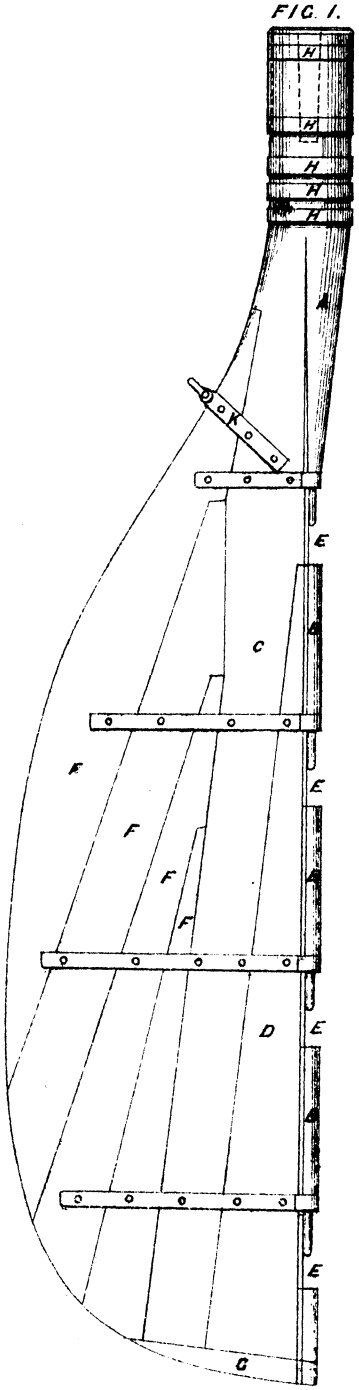

H
H
H
H
H
A
K
E
C
A
F
F
F
F
E
A
E
D
E
A
E
G

FIG. 2

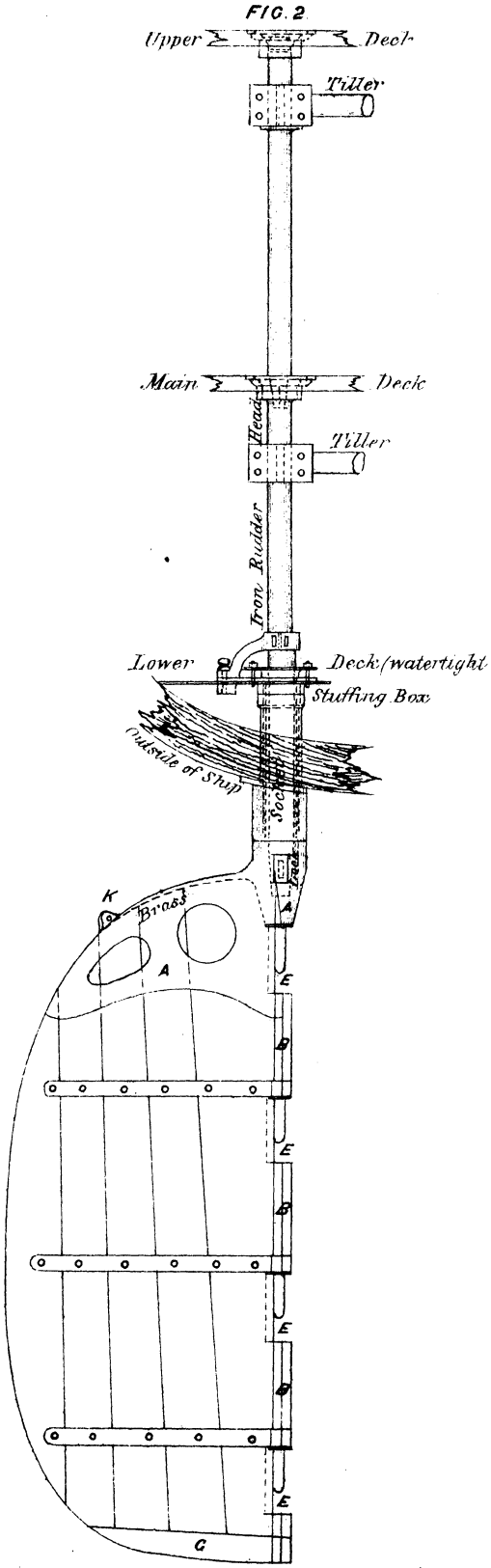

Upper Deck
Tiller
Main Deck
Head
Tiller
Iron Rudder
Lower Deck/watertight
Stuffing Box
outside of Ship
Iron
K
Brass
A
E
B
E
B
E
B
E
G

Plate LXXXIII

FIG. 1.

ELEVATION

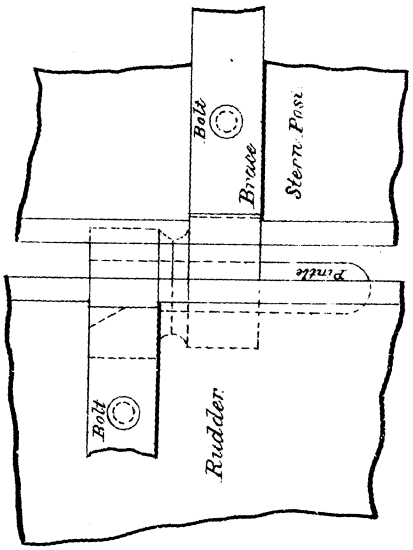


FIG. 2.

HORIZONTAL SECTION.

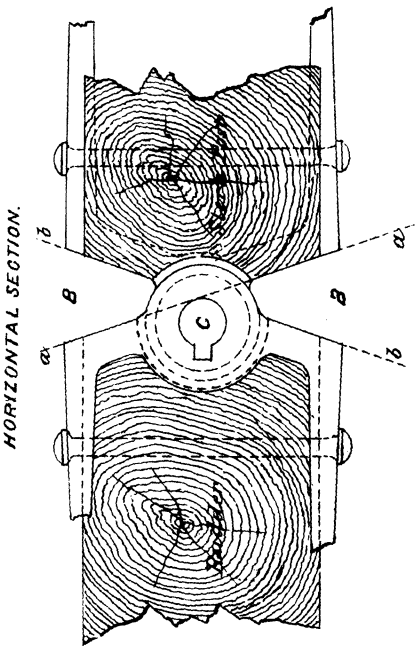
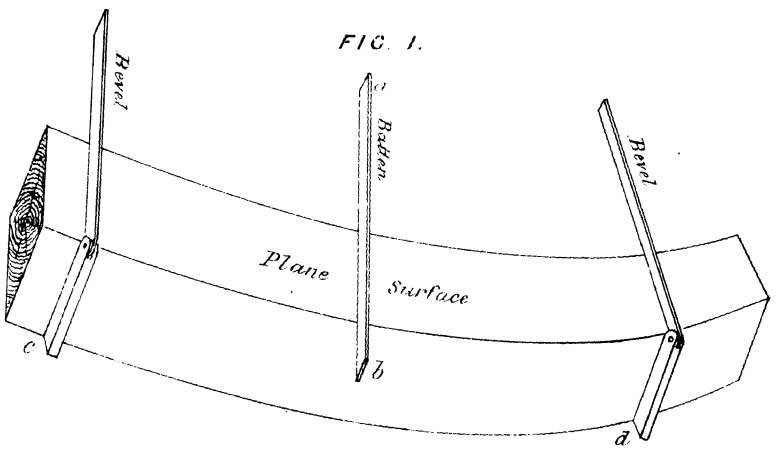


Plate LXXXIV

FIG. 1.



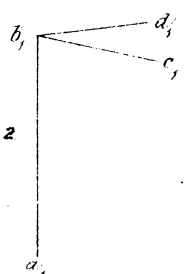


FIG. 2

Plate LXXXV

FIG. 1.

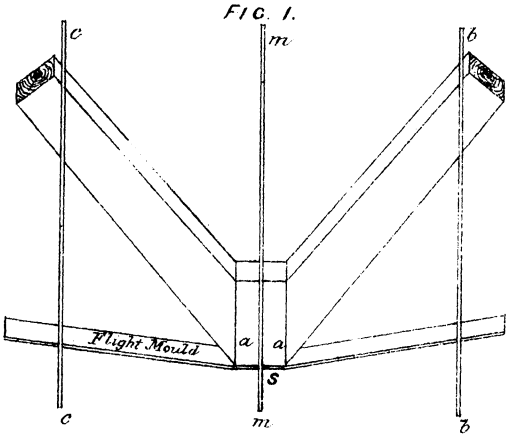


FIG. 2.

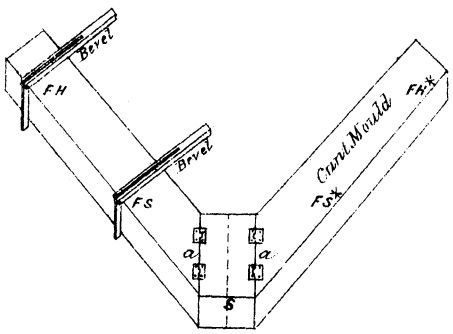


Plate LXXXVI

FIG. 1.

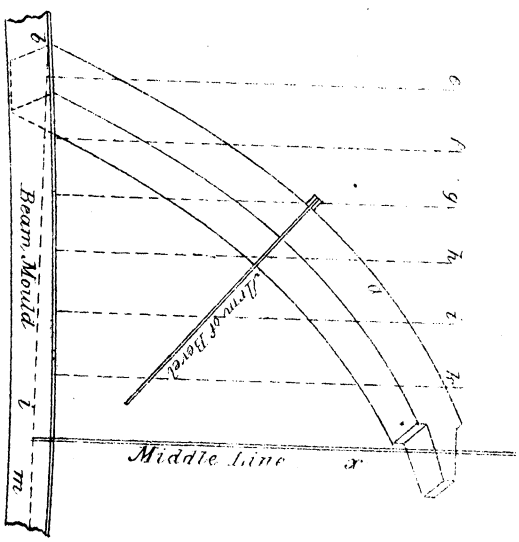


FIG. 2

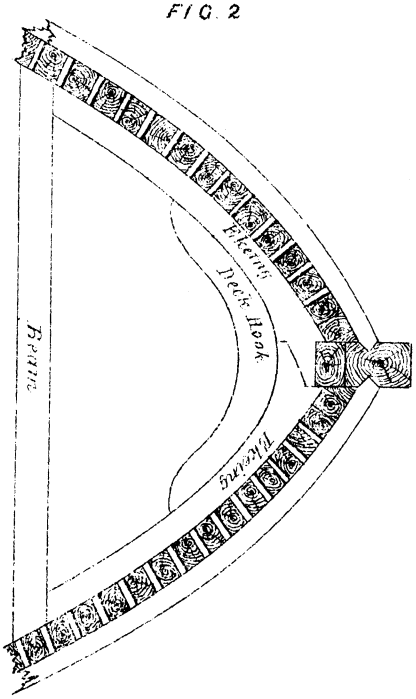


FIG 3.

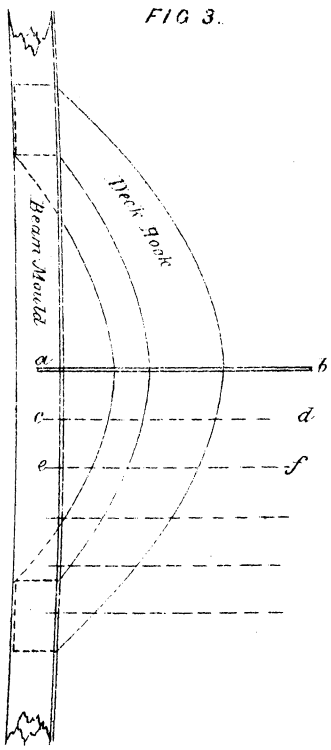


Plate LXXXVII

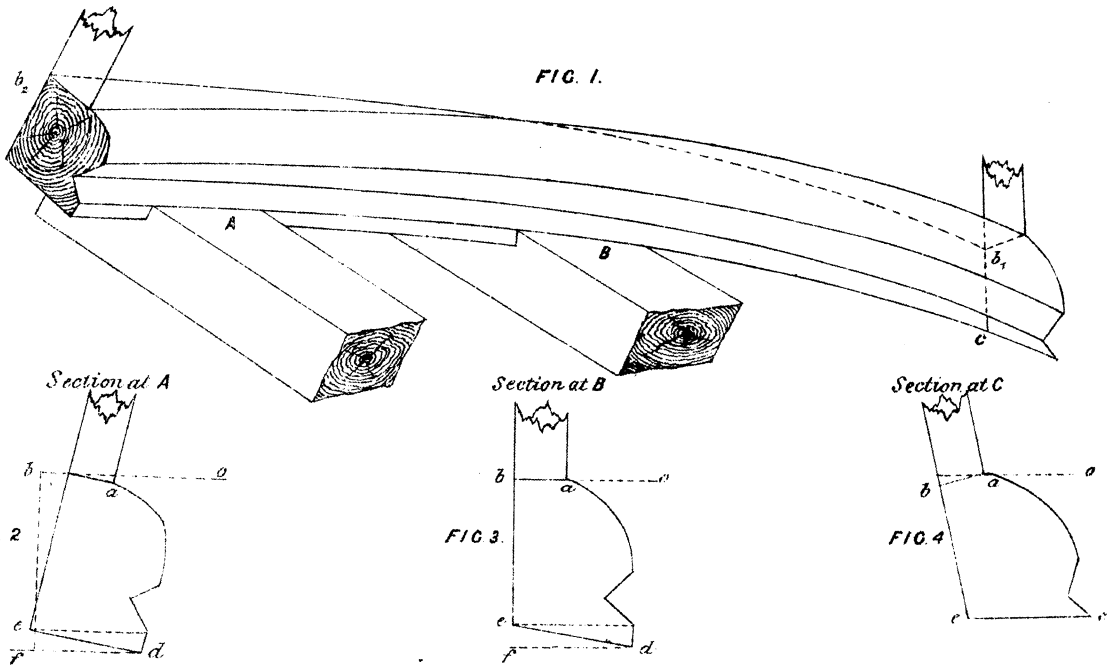
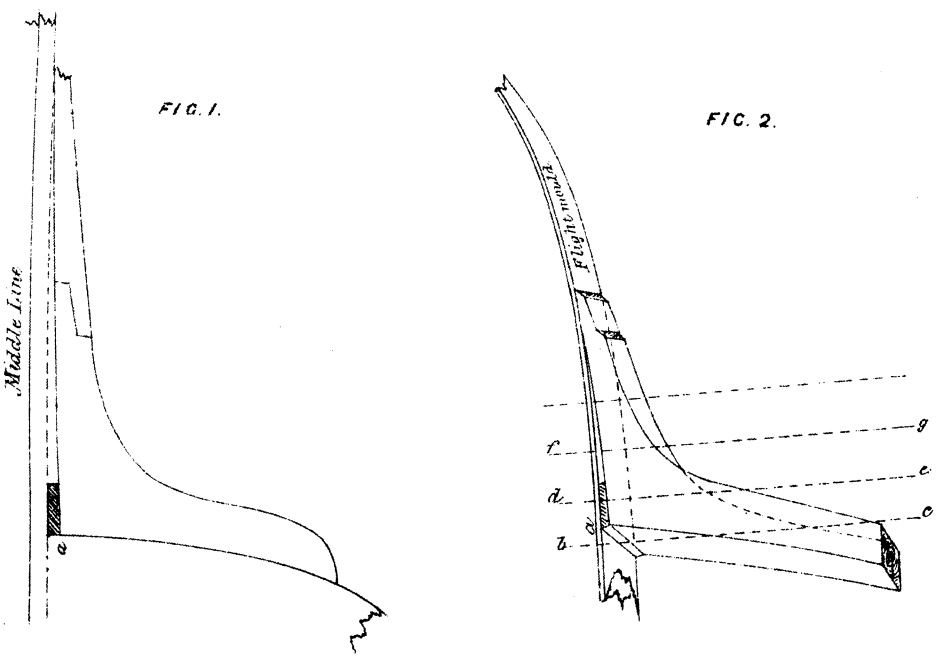


Plate LXXXVIII



Sheer Strake

Stringer

Tie Plate

Bulb Tee 6 × 5 × 7/16

Bulb iron 9 × 5/16 for 200 feet, 9 × 1/2 at ends

Bulb iron 3 × 3 × 5/16

Bulb iron 3½ × 3½ × 7/16

Tie plate

Bulb iron 10½ × 5/16 for 200 feet, 9 × 1/2 at ends

Frames 6", 3½ × 7/16 for 100 feet, others 5½ × 3½ × 7/16 alternately to main and awning deck stringers

Reverse Frames 4½ × 3½ × 7/16 for 200 feet, others 4" × 3" × 7/16 alternately to main deck and 9' above lower deck

Bulb iron 9 × 1/2 for 200 feet, 8" × 7/16 at ends

Stanchions on every beam for 125 feet and on every alternate beam before and abaft

Floors 27 × 5/8 for 20 Feet 27", 5/8 at ends.

Plate for 200 feet, 8 at ends

Frame

Reverse Frame

A

B

C

D

E

F

Scale 3/4 = 1 Foot

Plate XC

FIG. 1.

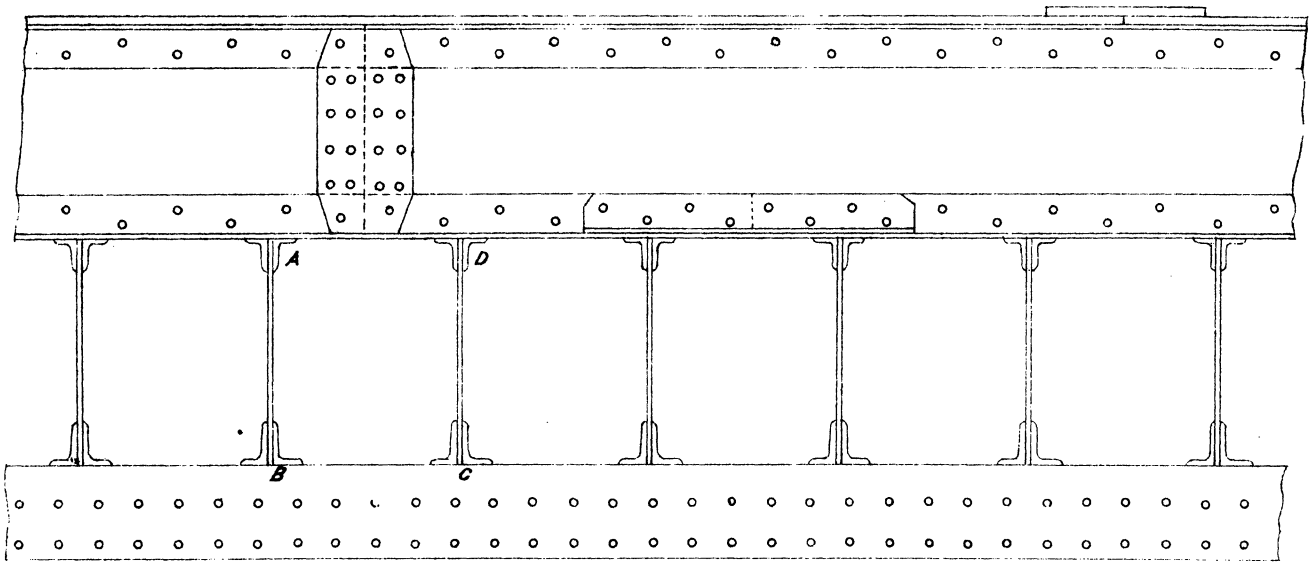


FIG. 2.

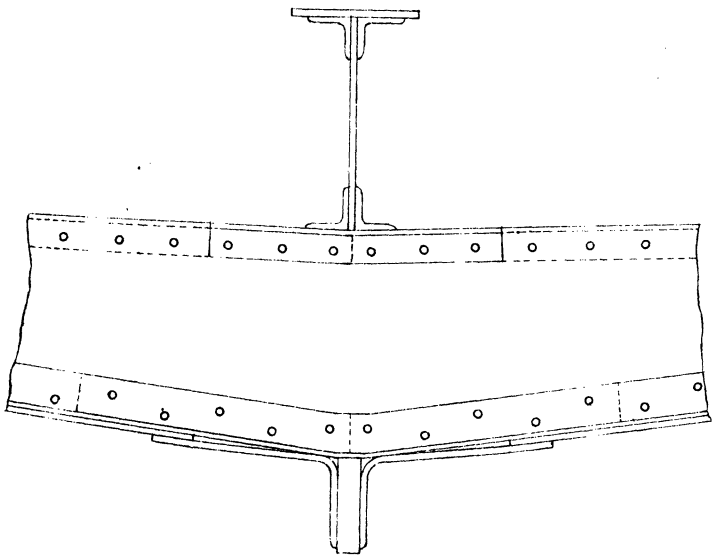


Plate XCIII

FIG. 1.

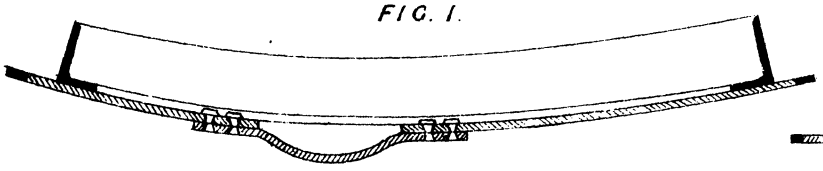


FIG. 2.

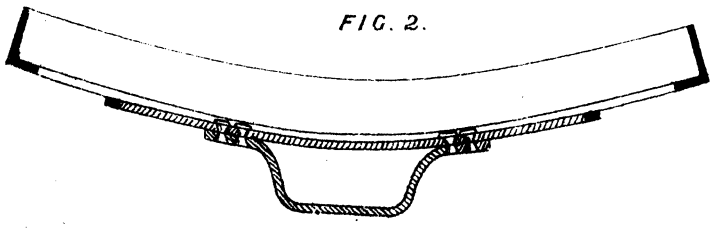


FIG. 3.

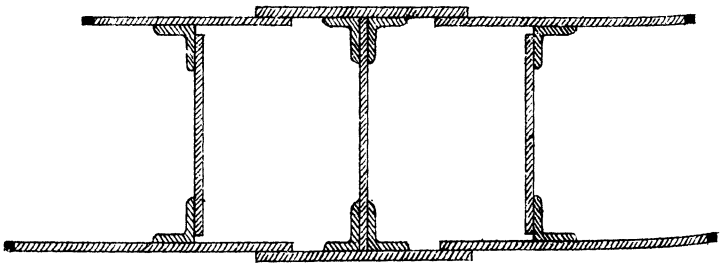


Plate XCI

FIG. 1.

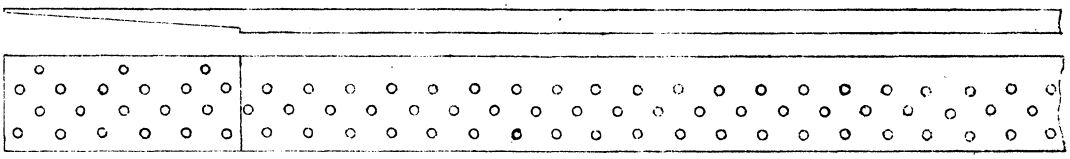


FIG. 2.

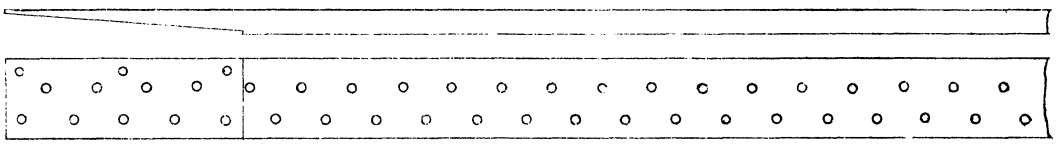
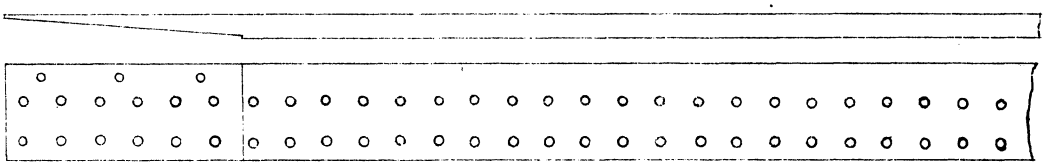


FIG. 3.



Scale ½ inch to the foot.

Plate XCII

FIG. 1.

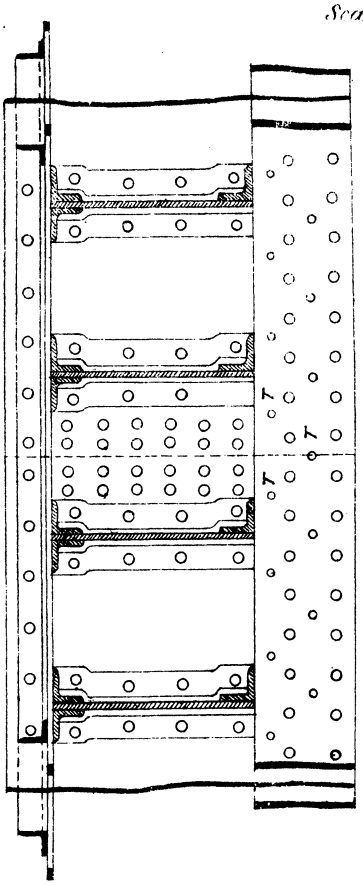


FIG. 2.

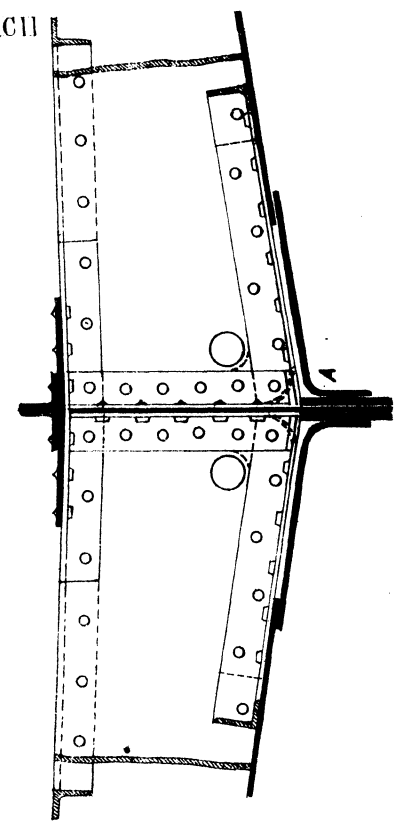


Plate XCIV

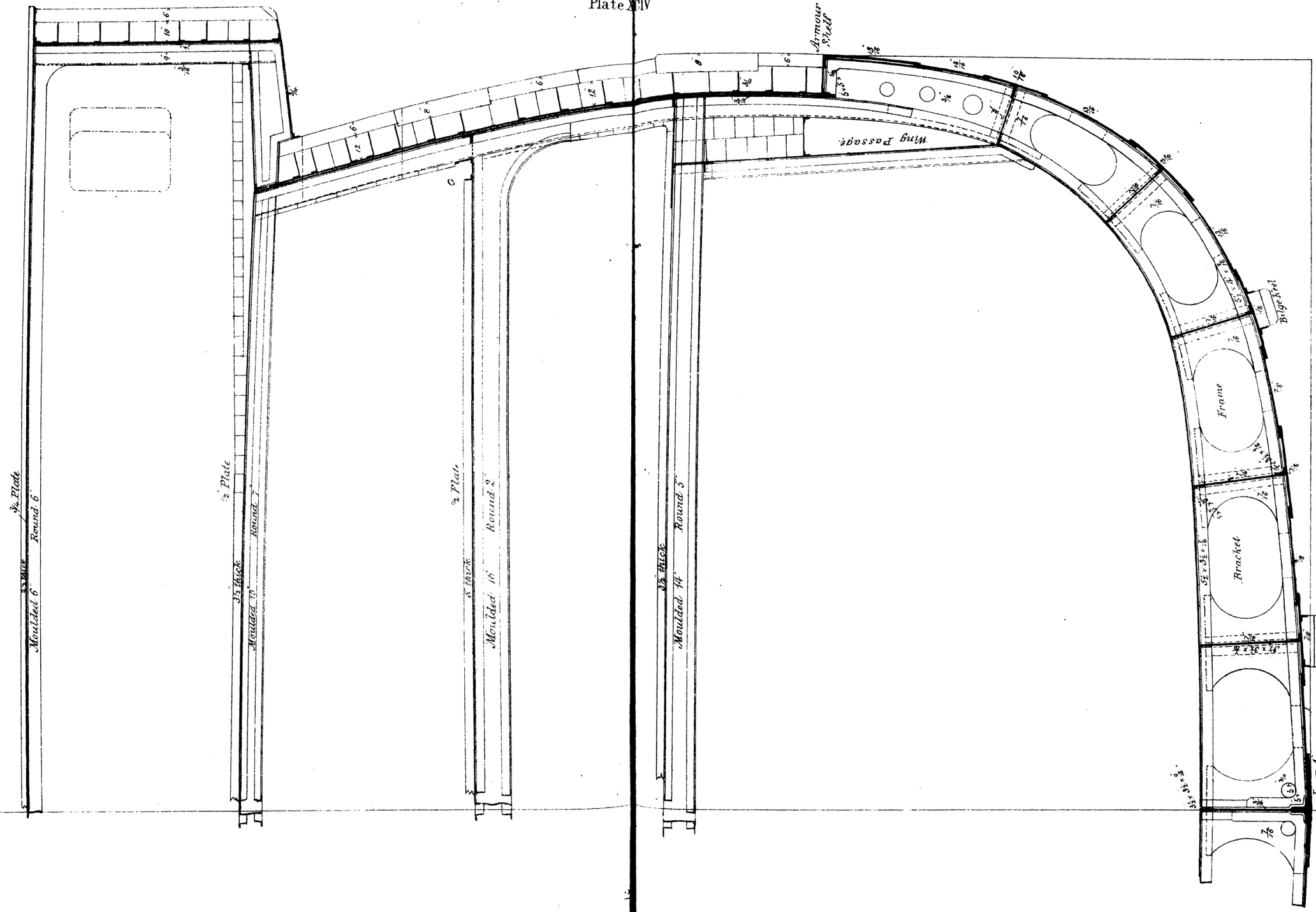

Armour Shelf
Wing Passage
Frame
Bracket
Bilge Keel
Bilge Keel
Inner 1/4
Outer 1/4
3/4 Plate
3/4 Thick
Moulded 6"
Round 6"
1/2 Plate
3/8 Thick
Moulded 10"
Round 7"
1/2 Plate
3/8 Thick
Moulded 16"
Round 2"
1/2 Plate
3/8 Thick
Moulded 14"
Round 5"

Plate XCV

FIG. 1.

PLAN.

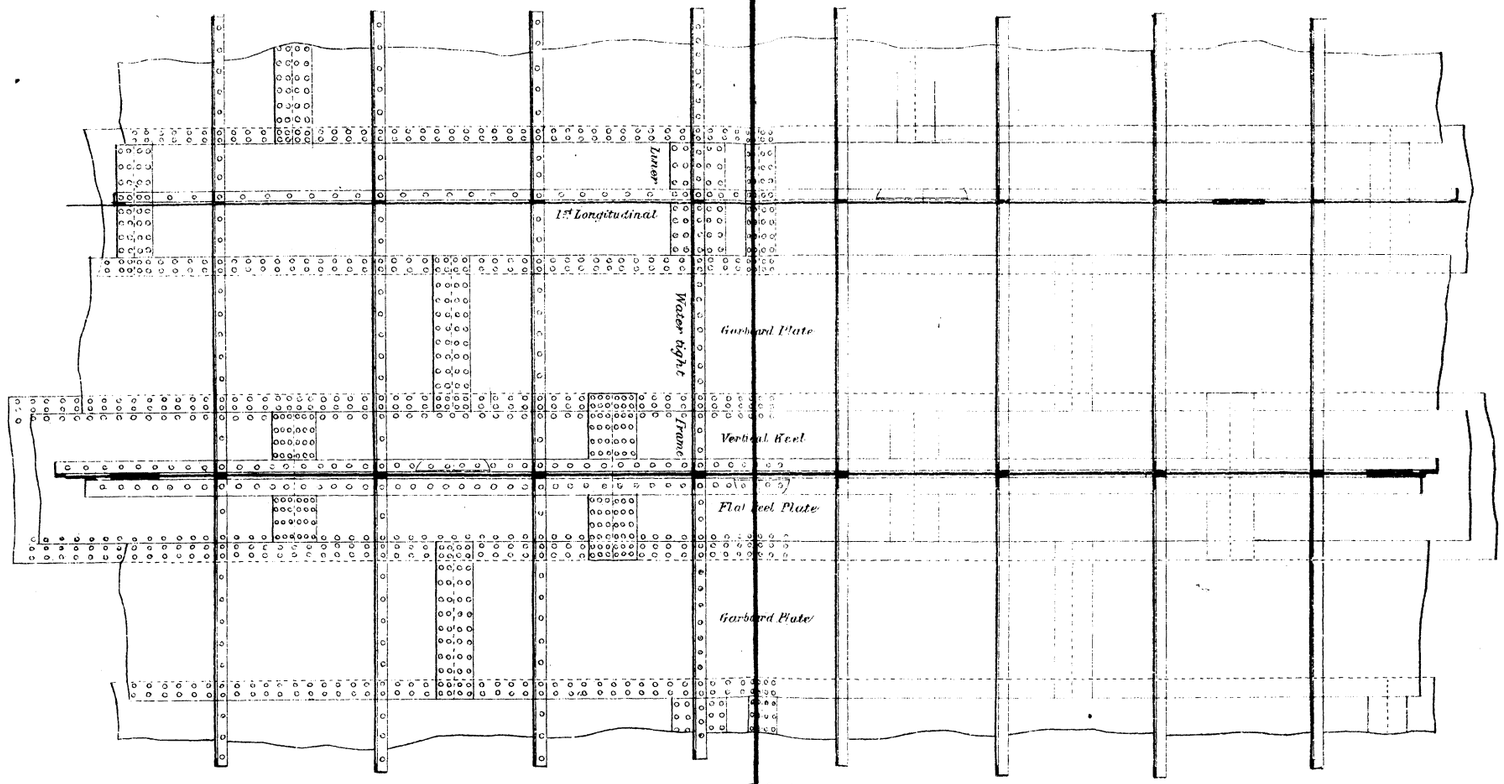
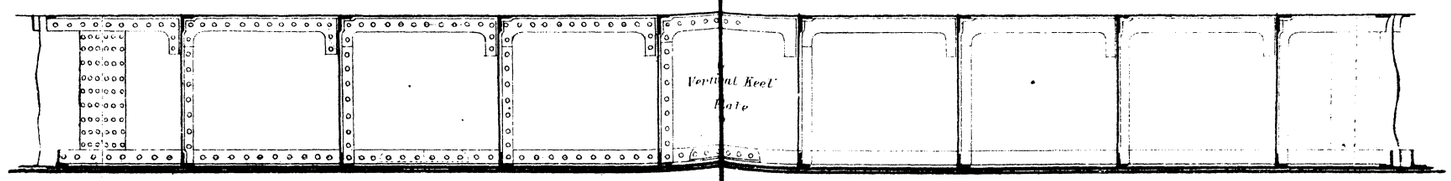


FIG. 2.

ELEVATION.



Midship Section of a Sheathed Iron Corvette.

Hammock Berthing

Upper Deck

Lower Deck

Teak

Teak Pine

Canada Elm

Pitch Pine

English Elm

3 x 3 x ⅞

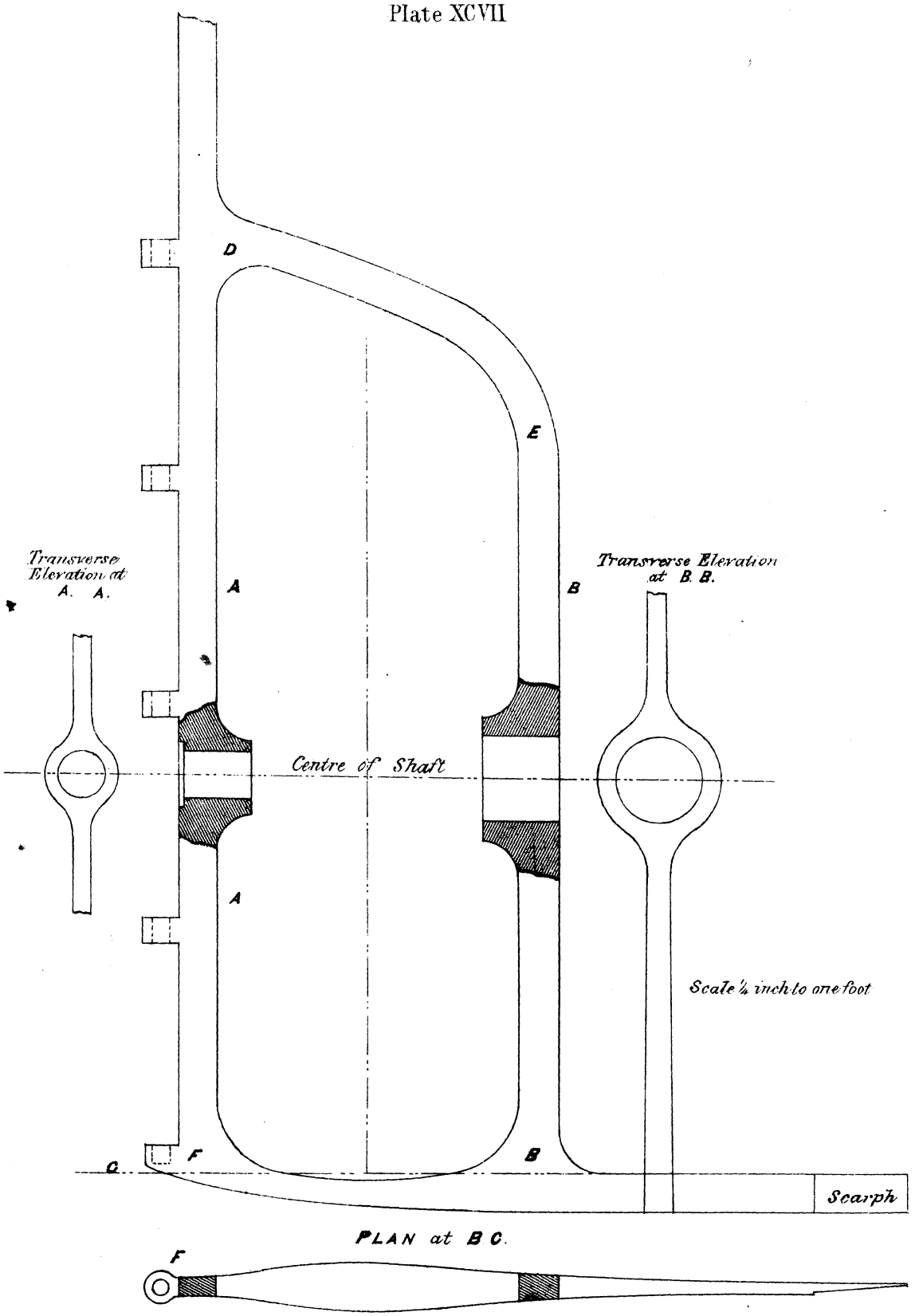
9 x 3½ x ⅞

3 x 3 x ⅞

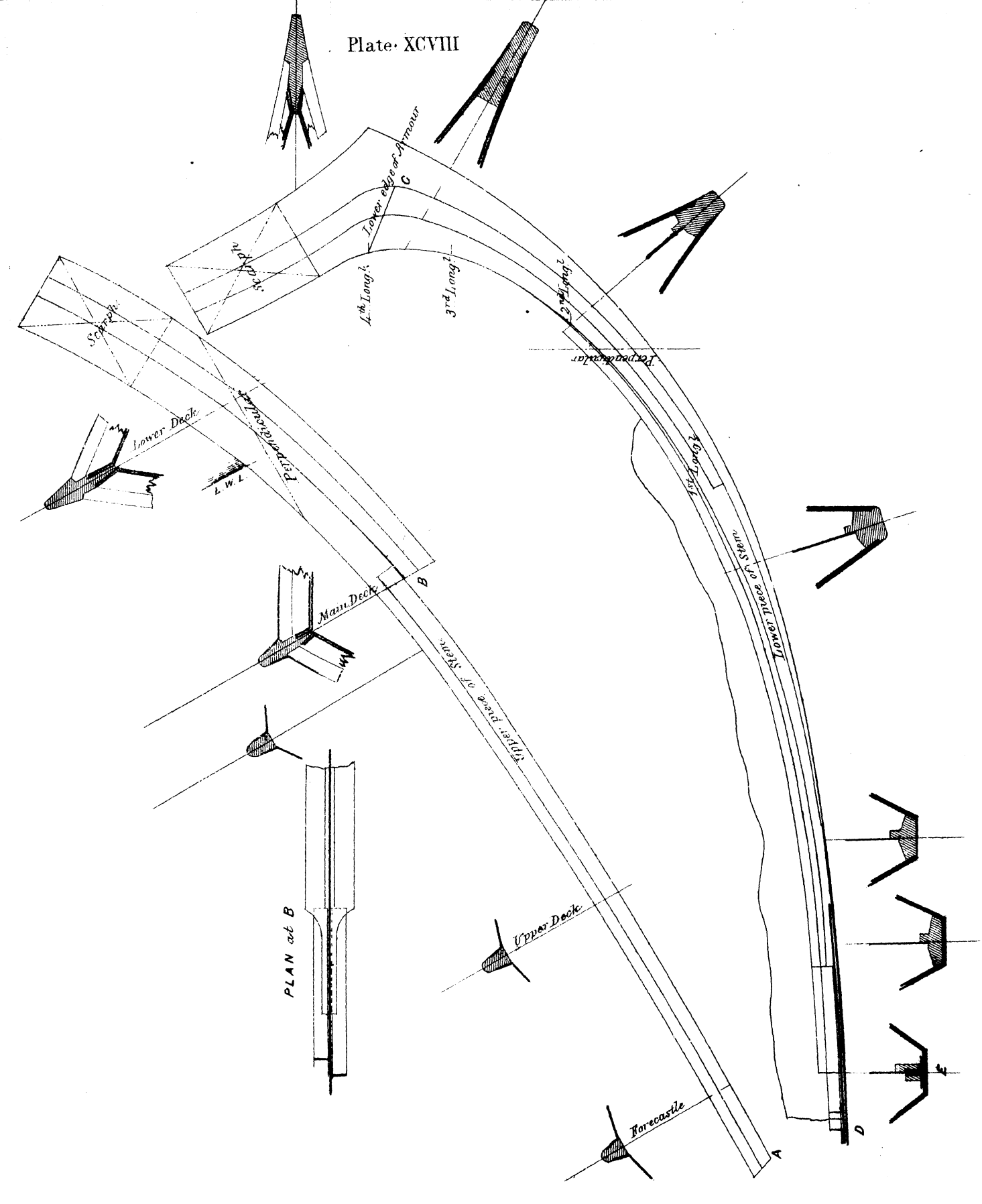
⅞

3 x 3 x ⅞

Plate XCVII


D
E
Transverse Elevation at A. A.
A
B
Transverse Elevation at B. B.
Centre of Shaft
A
Scale ¼ inch to one foot
C
F
B
Scarph
PLAN at B C.
F

Plate· XCVIII



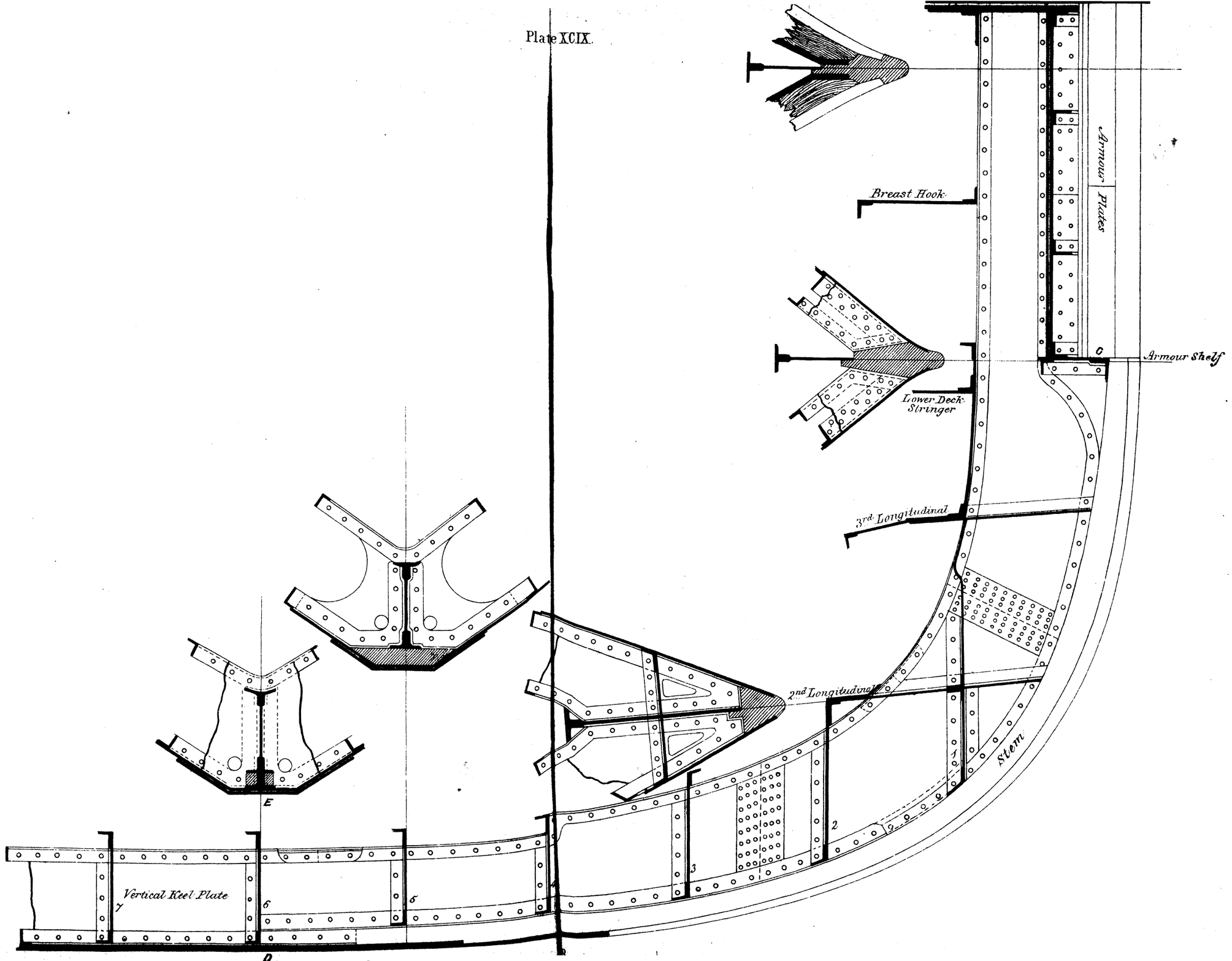

Armour Plates
Armour Shelf
Breast Hook
Lower Deck Stringer
3rd Longitudinal
2nd Longitudinal
Stem
Vertical Keel Plate
E
1
2
3
4
5
6
7

Plate C.

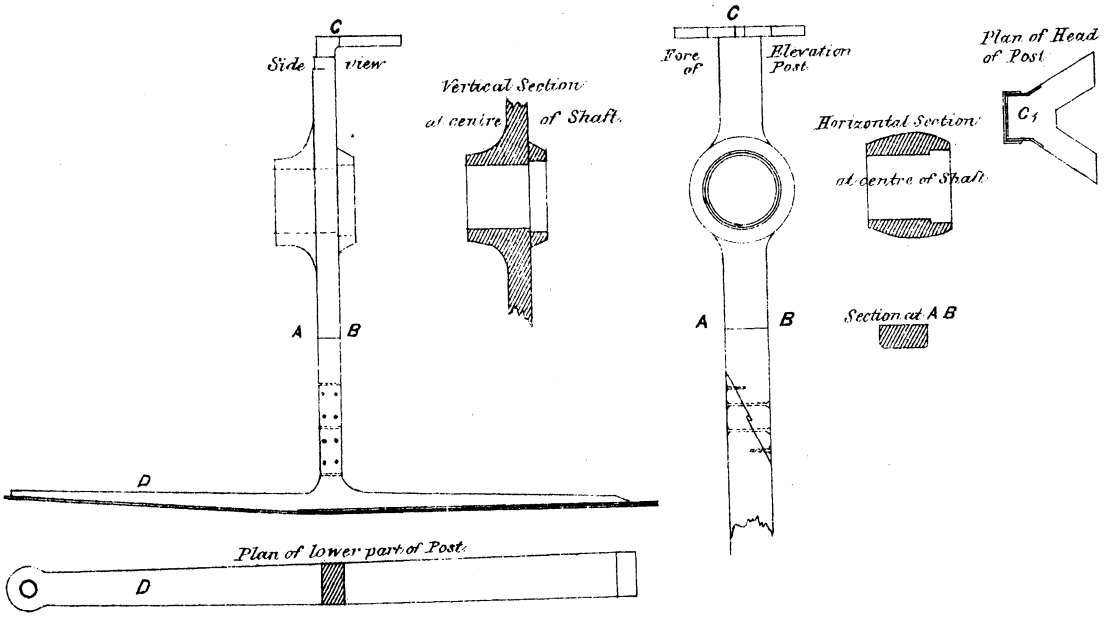
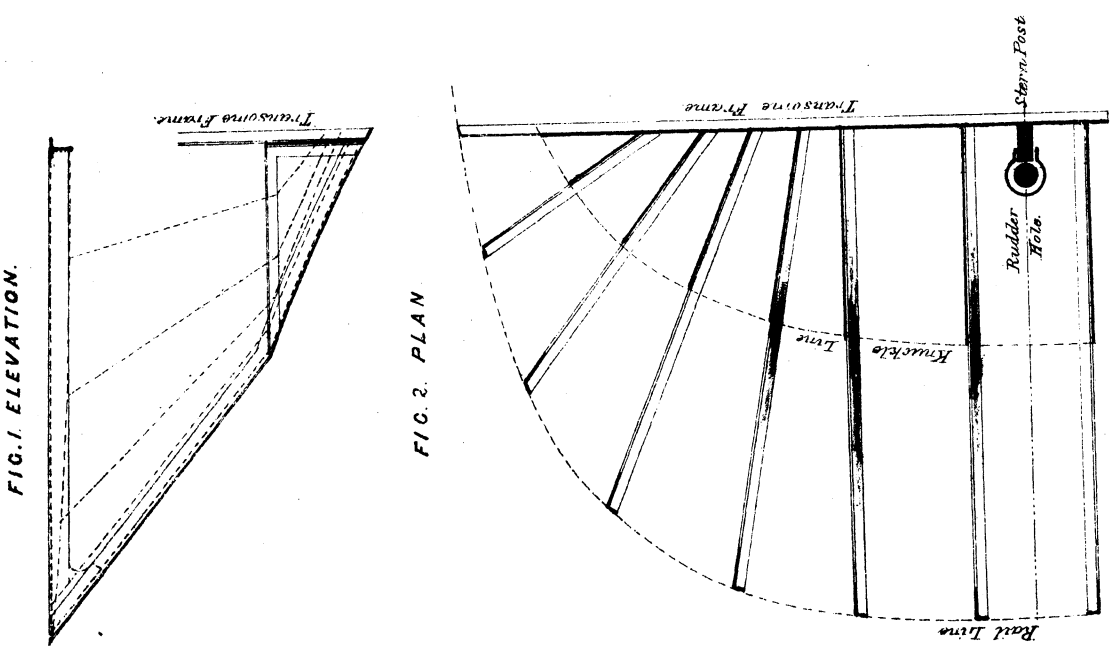


Plate CI



Shift of Butts of Bottom Plating and Longitudinals of an

ARMOUR CLAD SHIP.

Plates 16 feet long.

Butts of Longitudinal Plates thus ... *

Do do Angle irons ... $

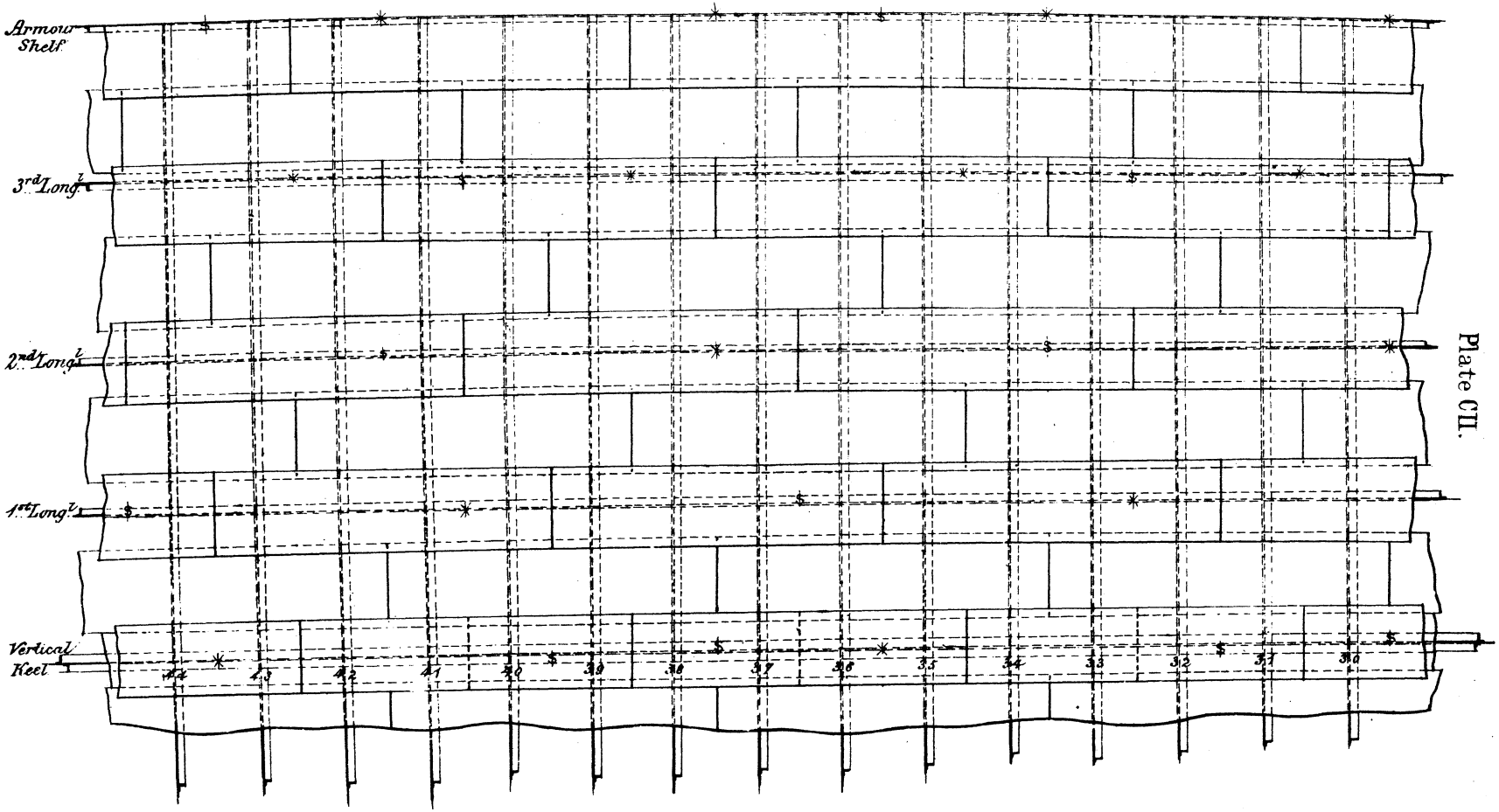
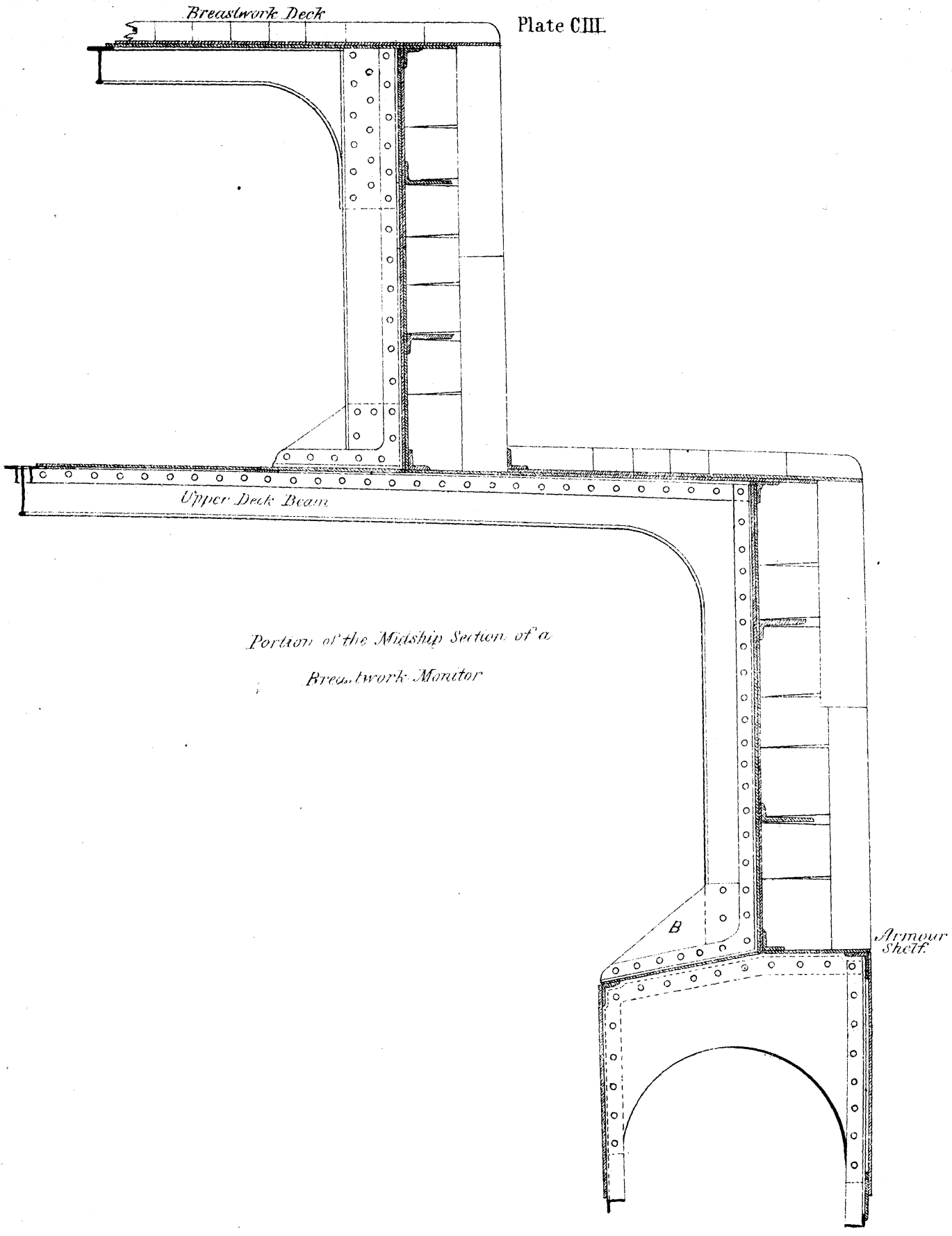


Plate CII.

Plate CIII.



Portion of the Midship Section of a Breastwork Monitor

Plate CIV.

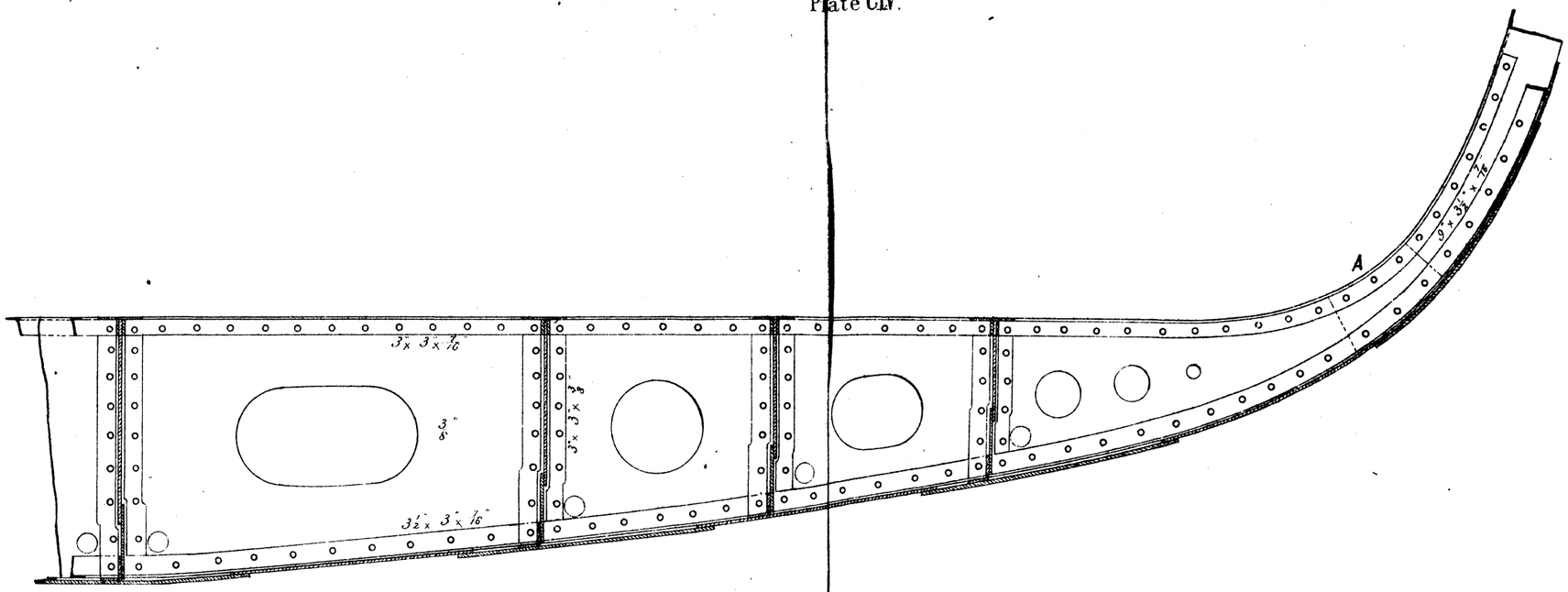


Plate CV.

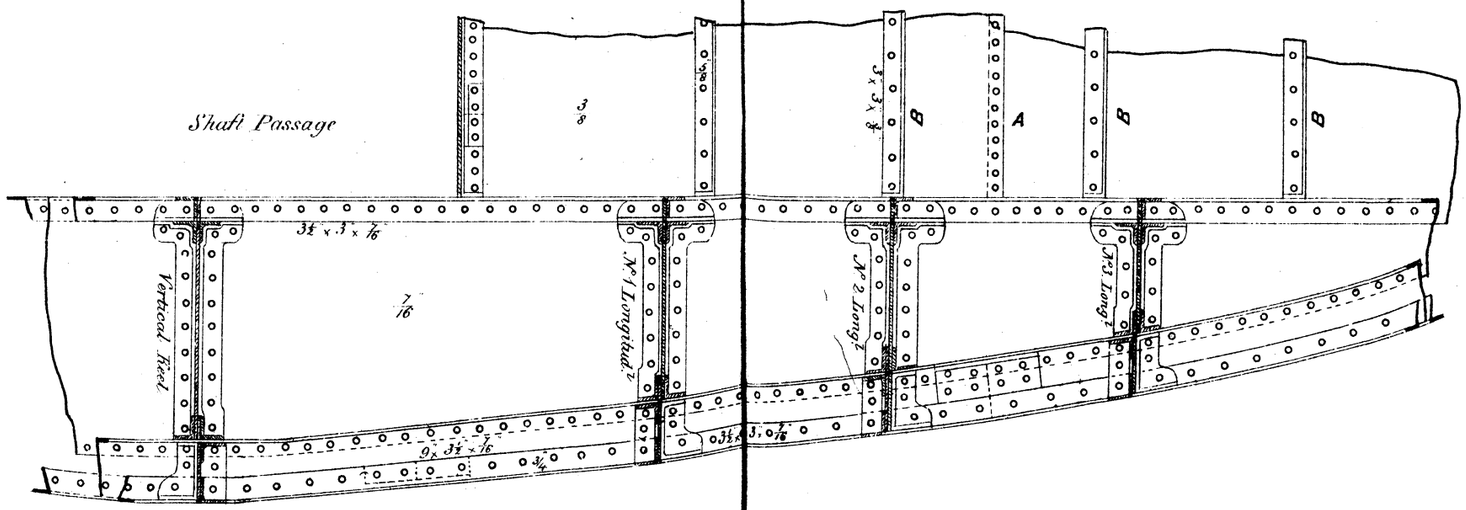
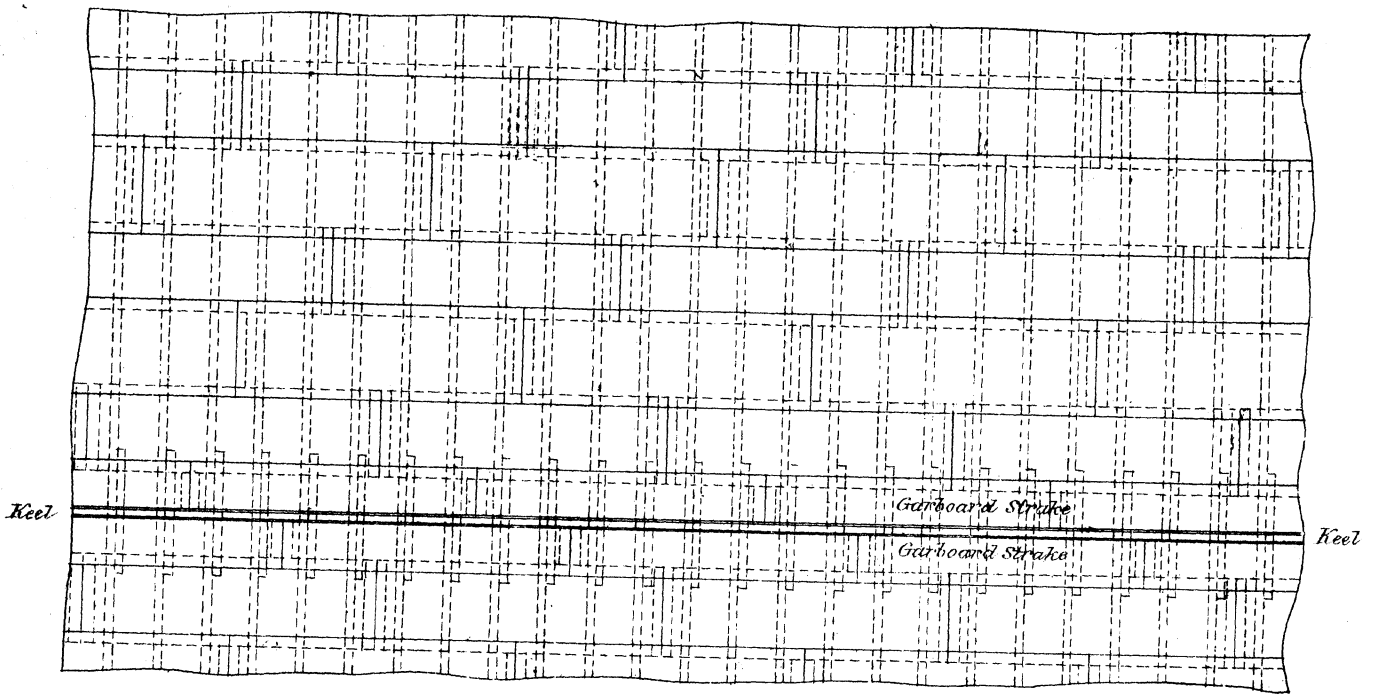


Plate CVI

Diagonal Shift of Butts.

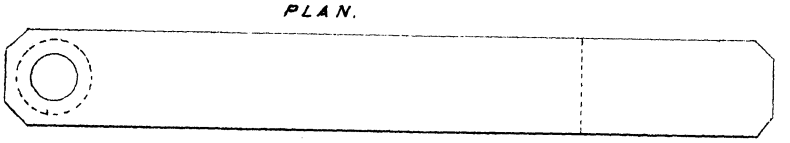


Scale ⅛ of an inch to the foot

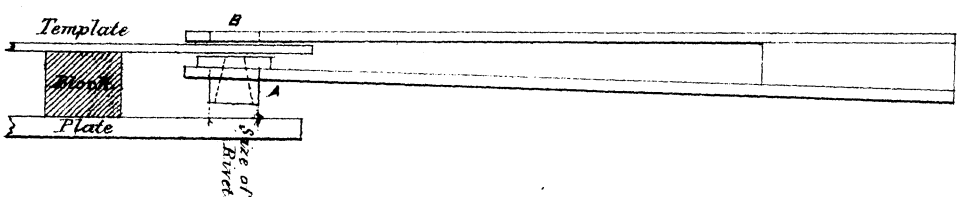
Plate CVII

Reversing Tool for marking Rivet Holes.

PLAN.



ELEVATION.



Scale 3 ins to the foot.

Plate CVIII.

Expansion of Bottom Plating, forward.

Butts of Longitudinal Plates, thus :-

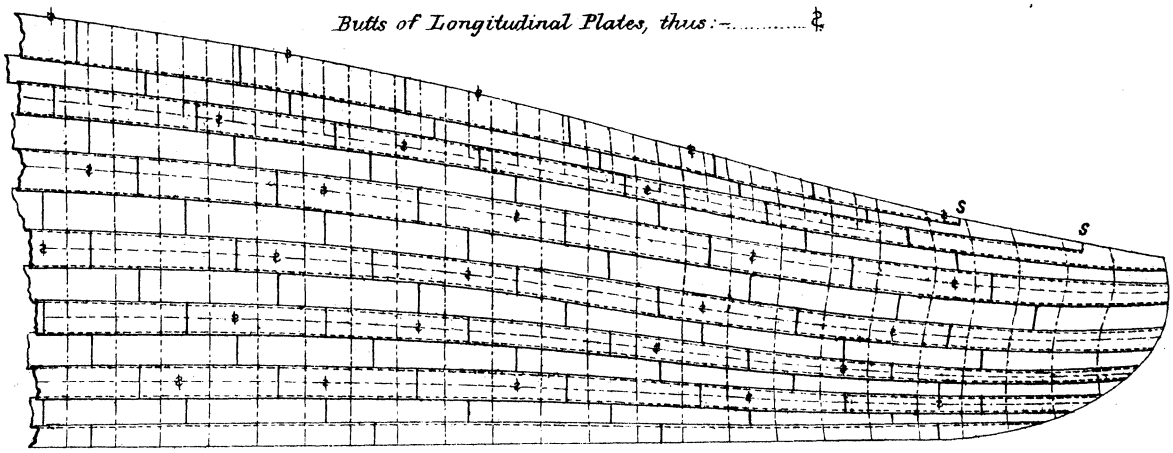
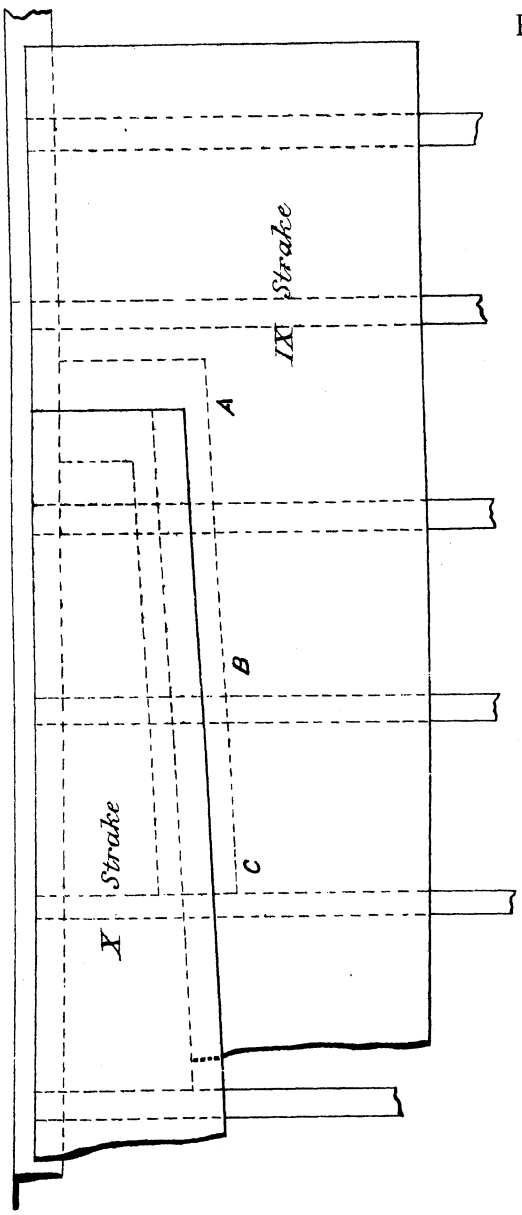
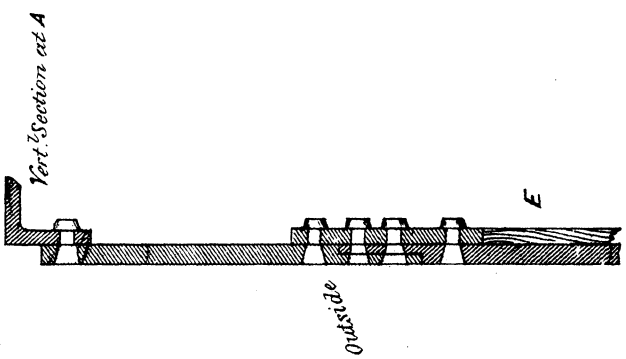
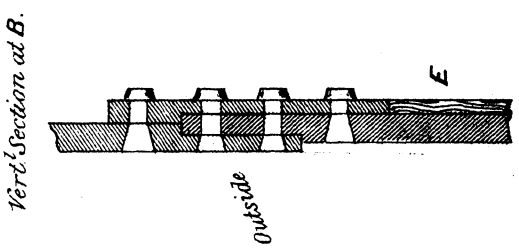
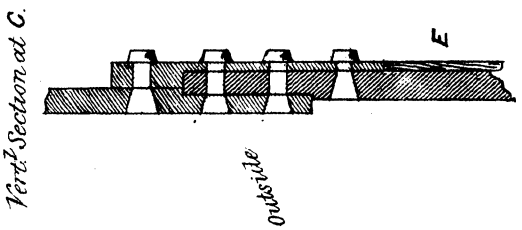


Plate CIX.









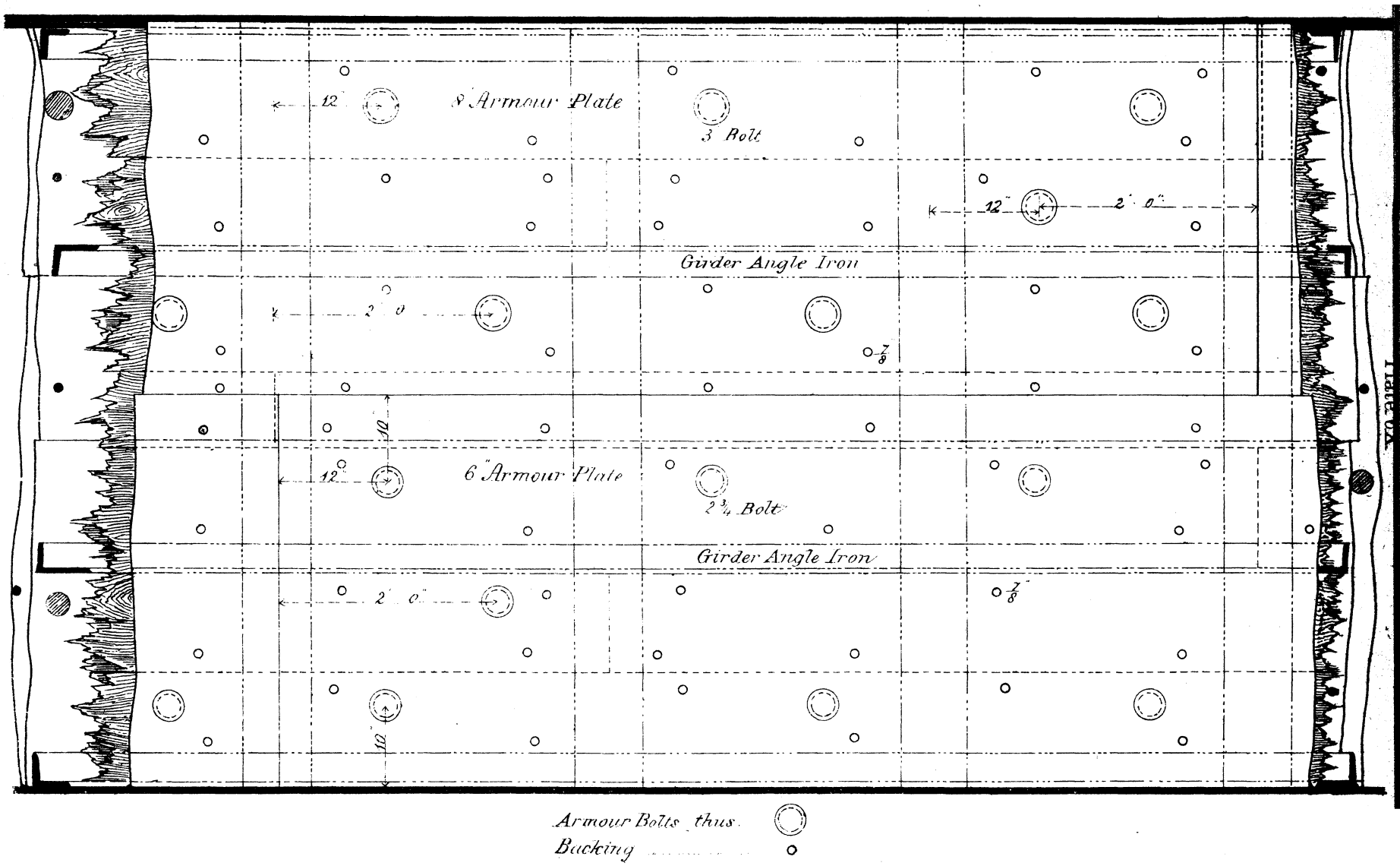
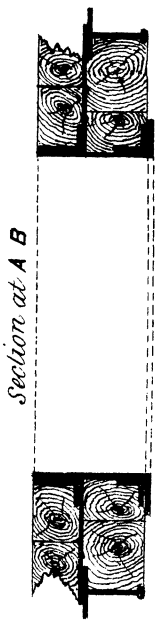

8" Armour Plate
3" Bolt
12"
2' 0"
Girder Angle Iron
7/8
10"
6" Armour Plate
2 3/4 Bolt
Girder Angle Iron
Armour Bolts thus
Backing

Plate CXI



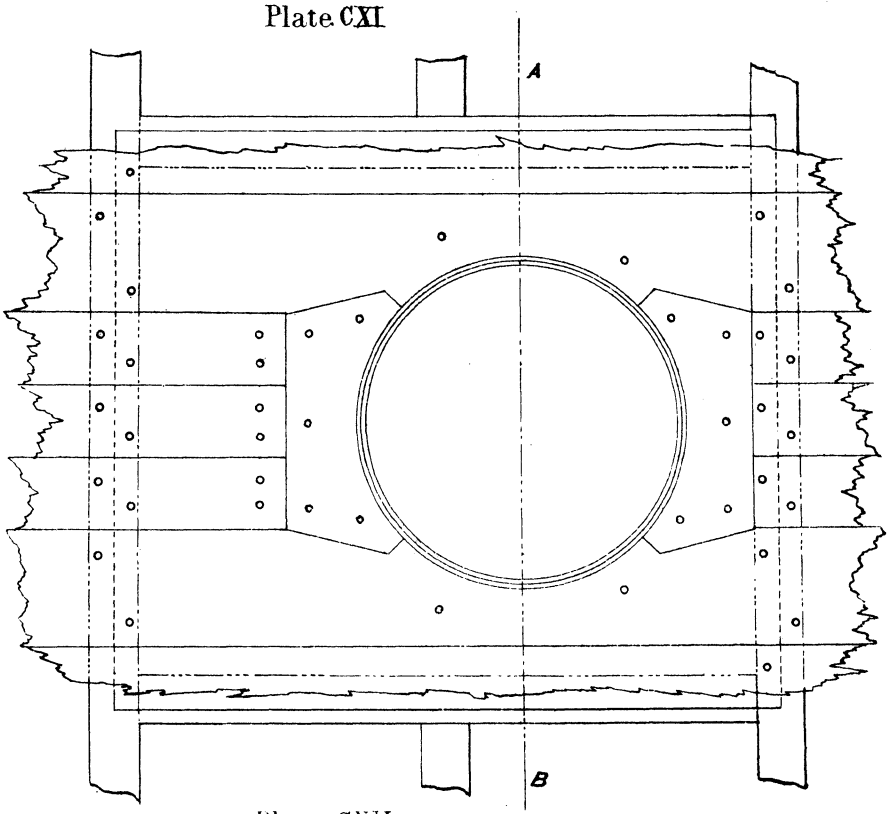
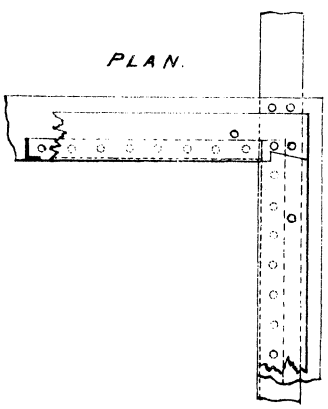


Plate CXII



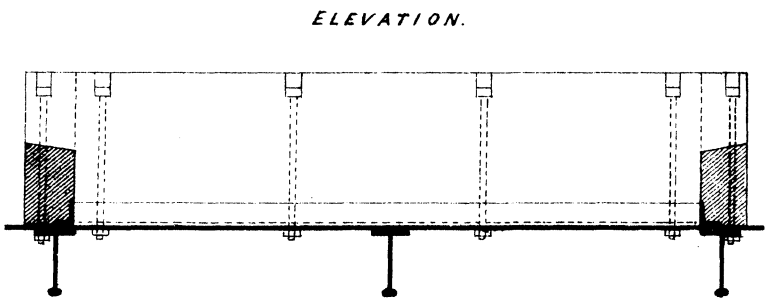


Plate CXIII

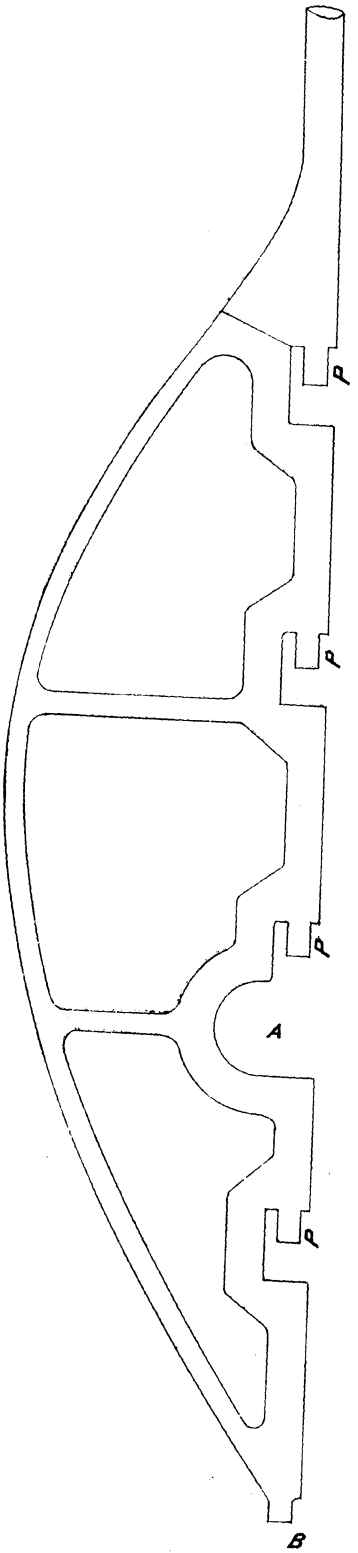


Plate CXIV

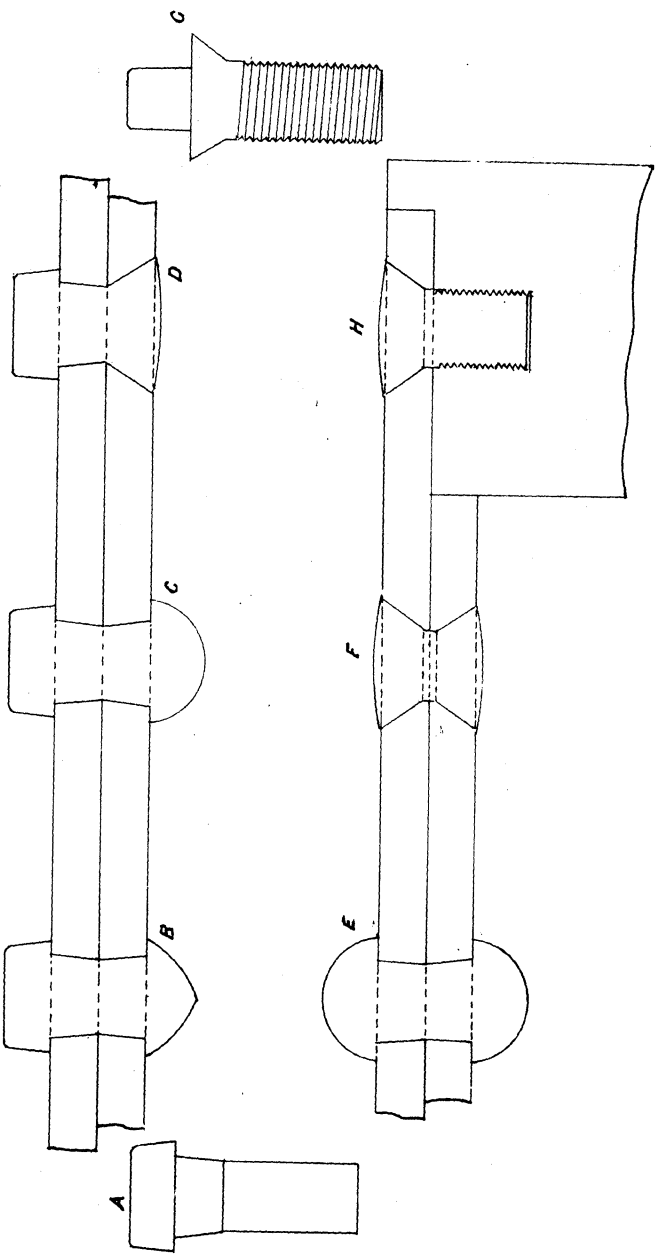


Plate CXV

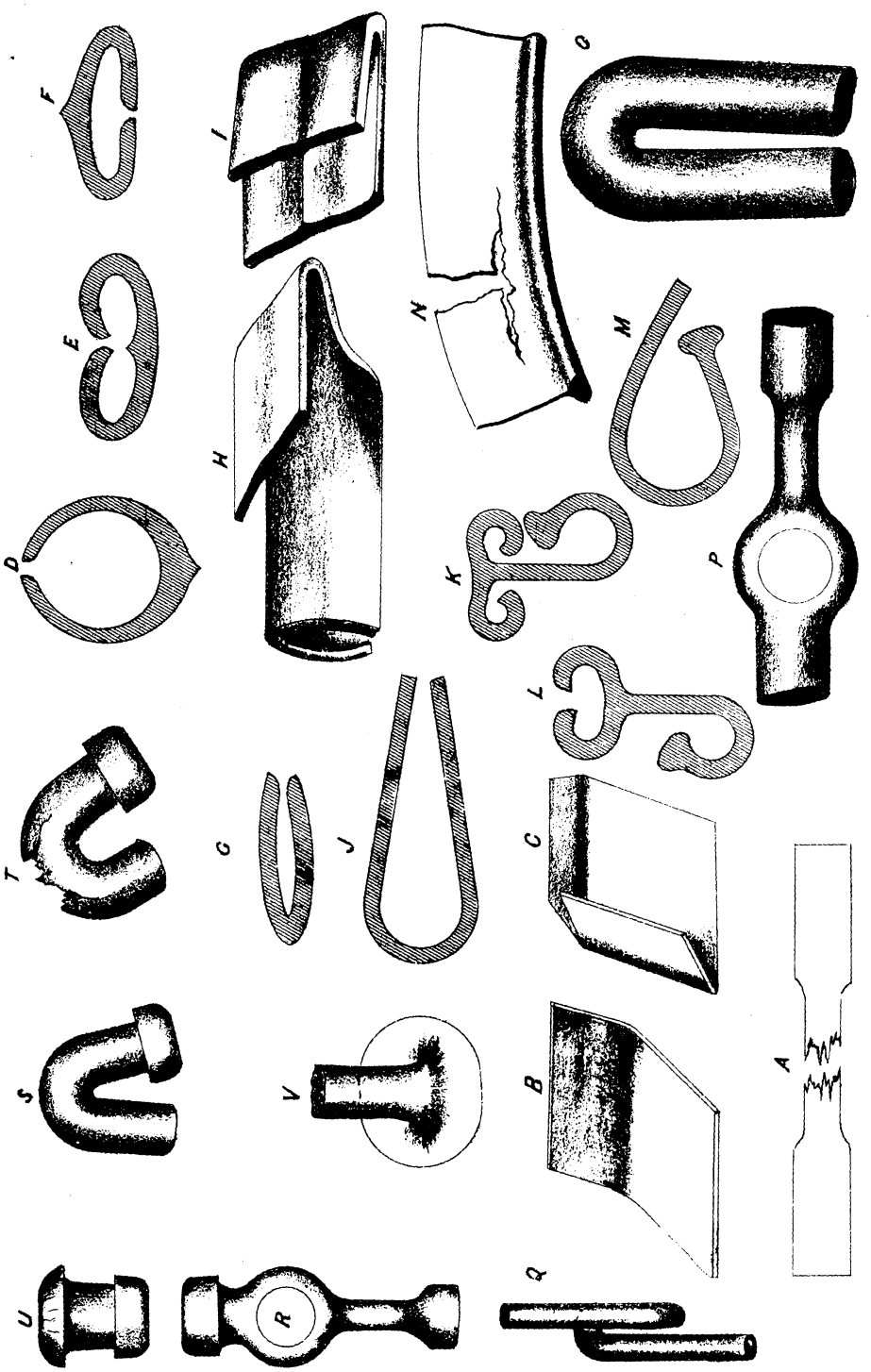


Plate CXVI

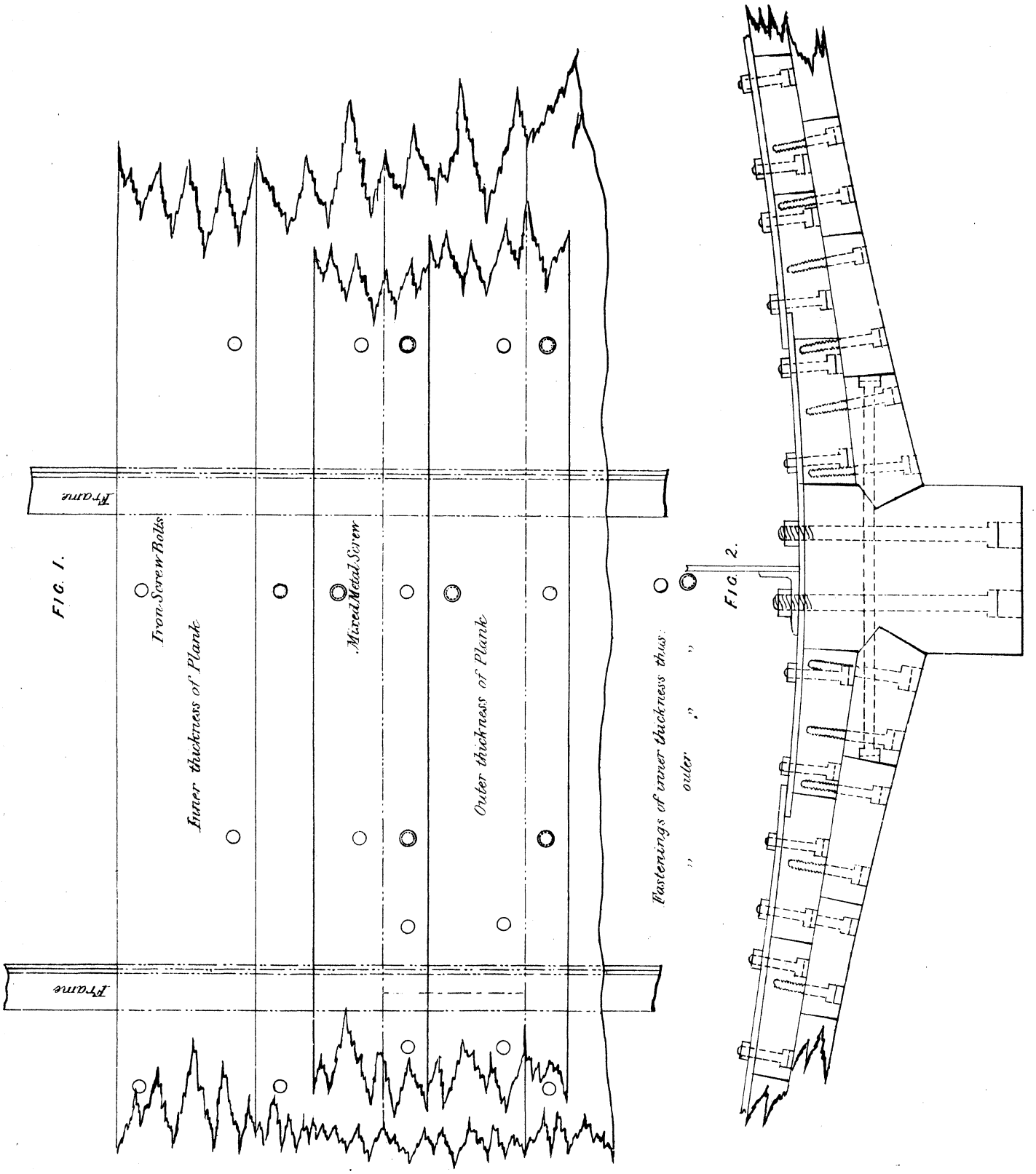
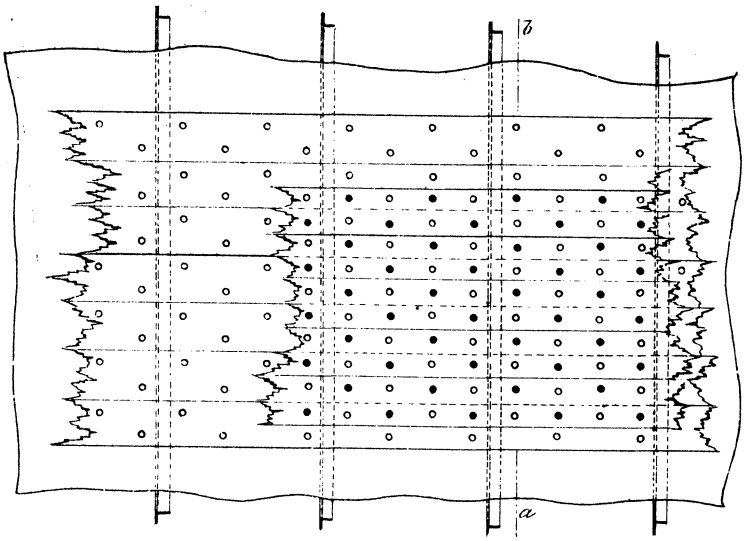
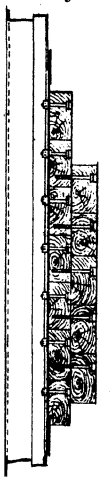


FIG. 1.
Frame
Iron Screw Bolts
Inner thickness of Plank
Mixed Metal Screw
Outer thickness of Plank
Frame
Fastenings of inner thickness thus:
" outer "
FIG. 2.

Plate CXVII



Section through a b.



○ 1 Inch Iron Bolts for fastening inner sheathing.

● ⅝ " Metal " " " " outer "

Plate CXVIII

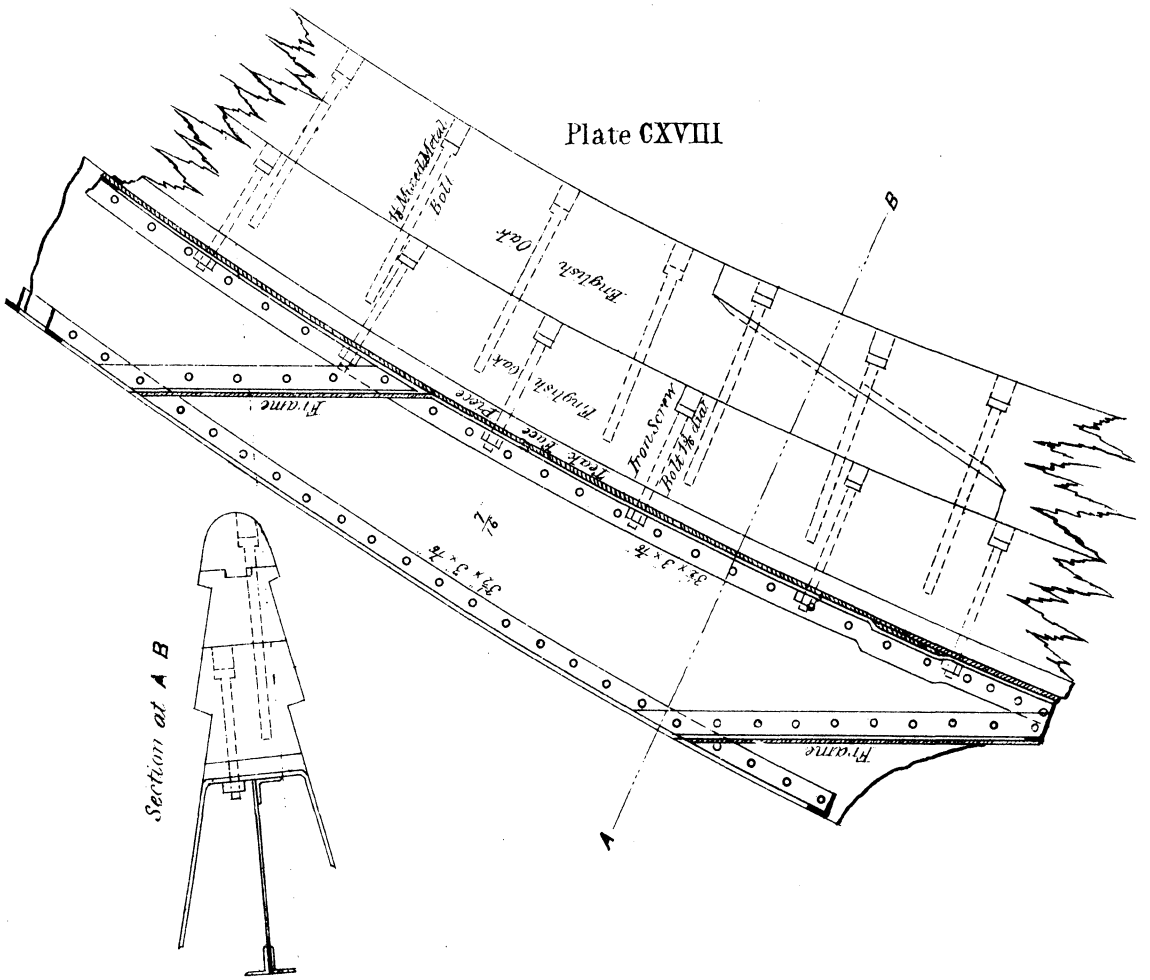


Plate CXIX

HALF MIDSHIP SECTION OF A VESSEL WITH TWO DECKS, OF 800 & UNDER 900 TONS,

BY LLOYDS RULES.

Length ..... 193. 0"
Breadth moulded ..... 32. 6"
Depth ..... 20. 3"

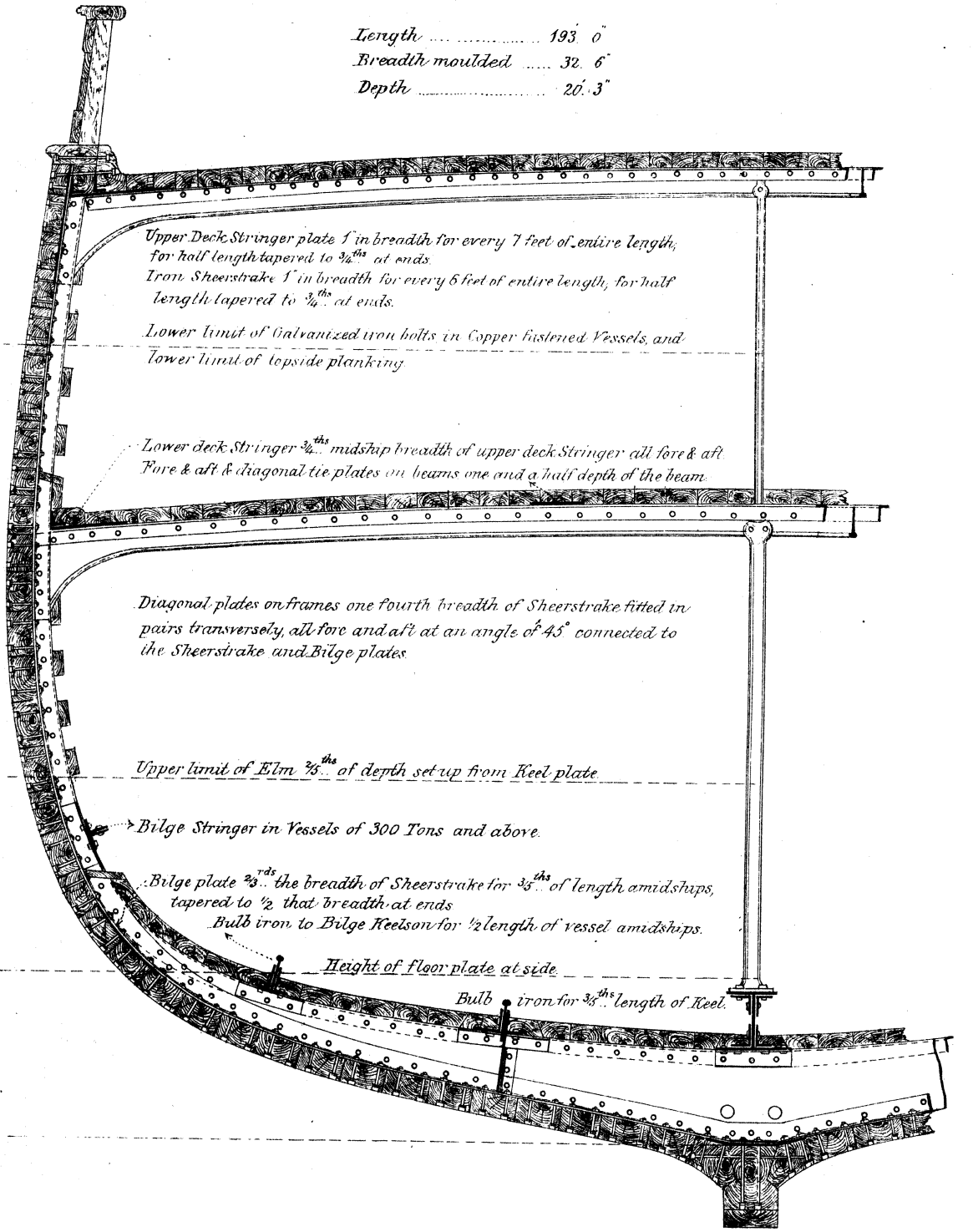

Upper Deck Stringer plate 1" in breadth for every 7 feet of entire length, for half length tapered to 3/4ths at ends.
Iron Sheerstrake 1" in breadth for every 6 feet of entire length, for half length tapered to 3/4ths at ends.
Lower limit of Galvanized iron bolts in Copper fastened Vessels, and lower limit of topside planking
Lower deck Stringer 3/4ths midship breadth of upper deck Stringer all fore & aft
Fore & aft & diagonal tie plates on beams one and a half depth of the beam
Diagonal plates on frames one fourth breadth of Sheerstrake fitted in pairs transversely, all fore and aft at an angle of 45° connected to the Sheerstrake and Bilge plates
Upper limit of Elm 3/5ths of depth set up from Keel plate
Bilge Stringer in Vessels of 300 Tons and above.
Bilge plate 2/3rds the breadth of Sheerstrake for 3/5ths of length amidships, tapered to 1/2 that breadth at ends
Bulb iron to Bilge Keelson for 1/2 length of vessel amidships.
Height of floor plate at side
Bulb iron for 3/5ths length of Keel.

Plate CXX

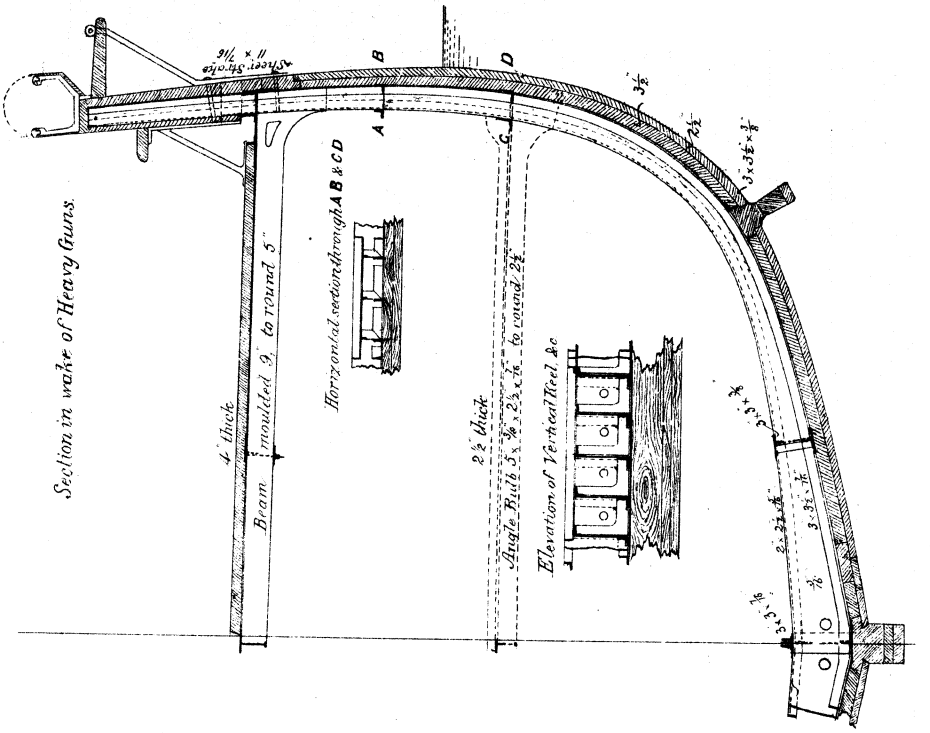


Plate CXXI

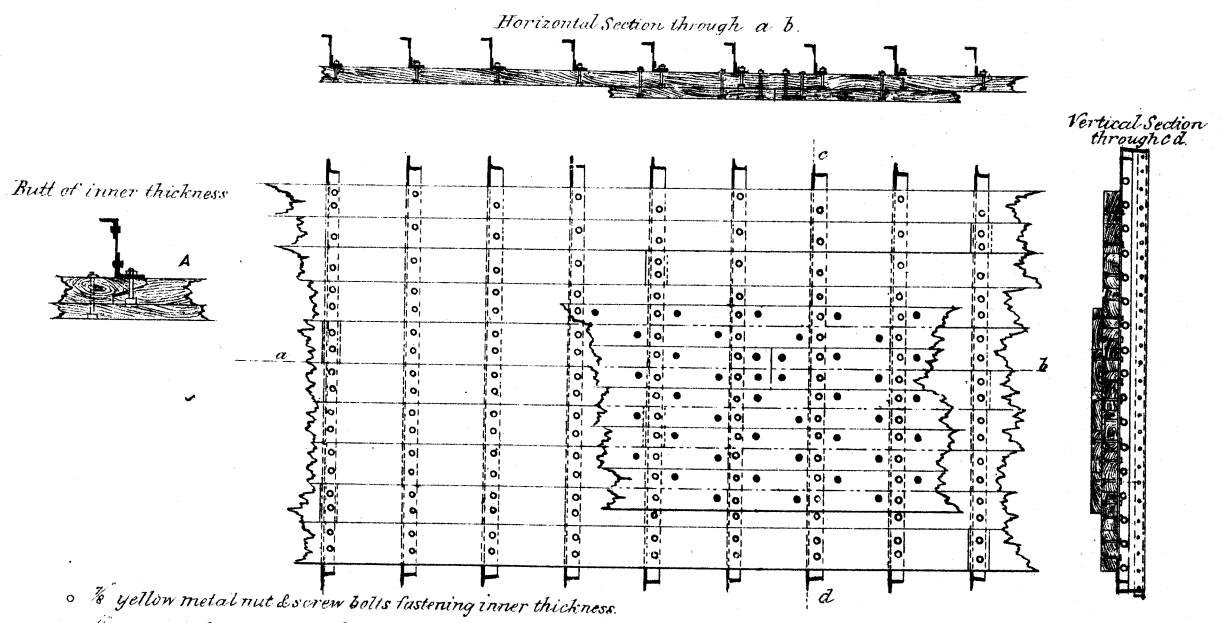


FIG. 1.

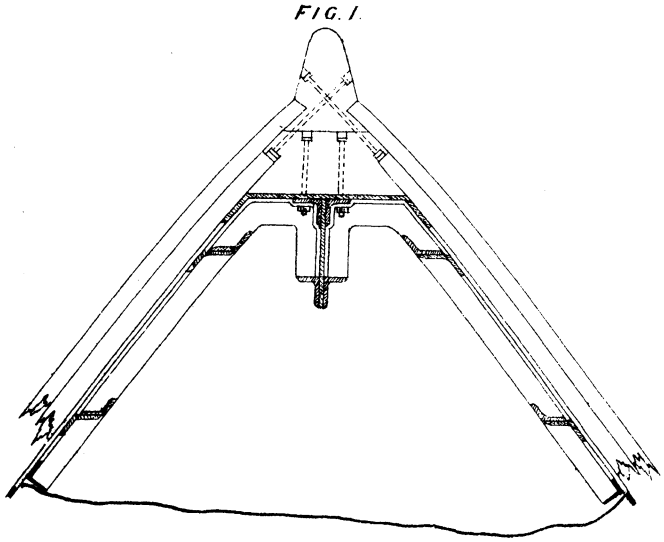


FIG. 2.

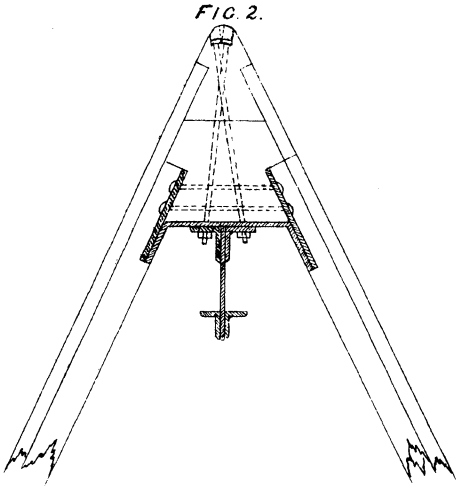


FIG. 3.

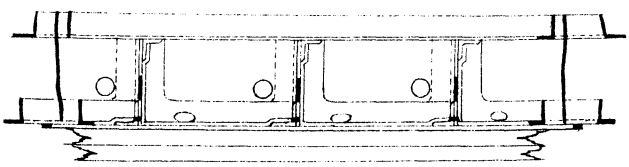
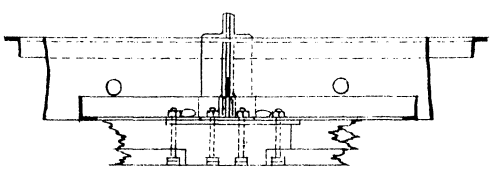
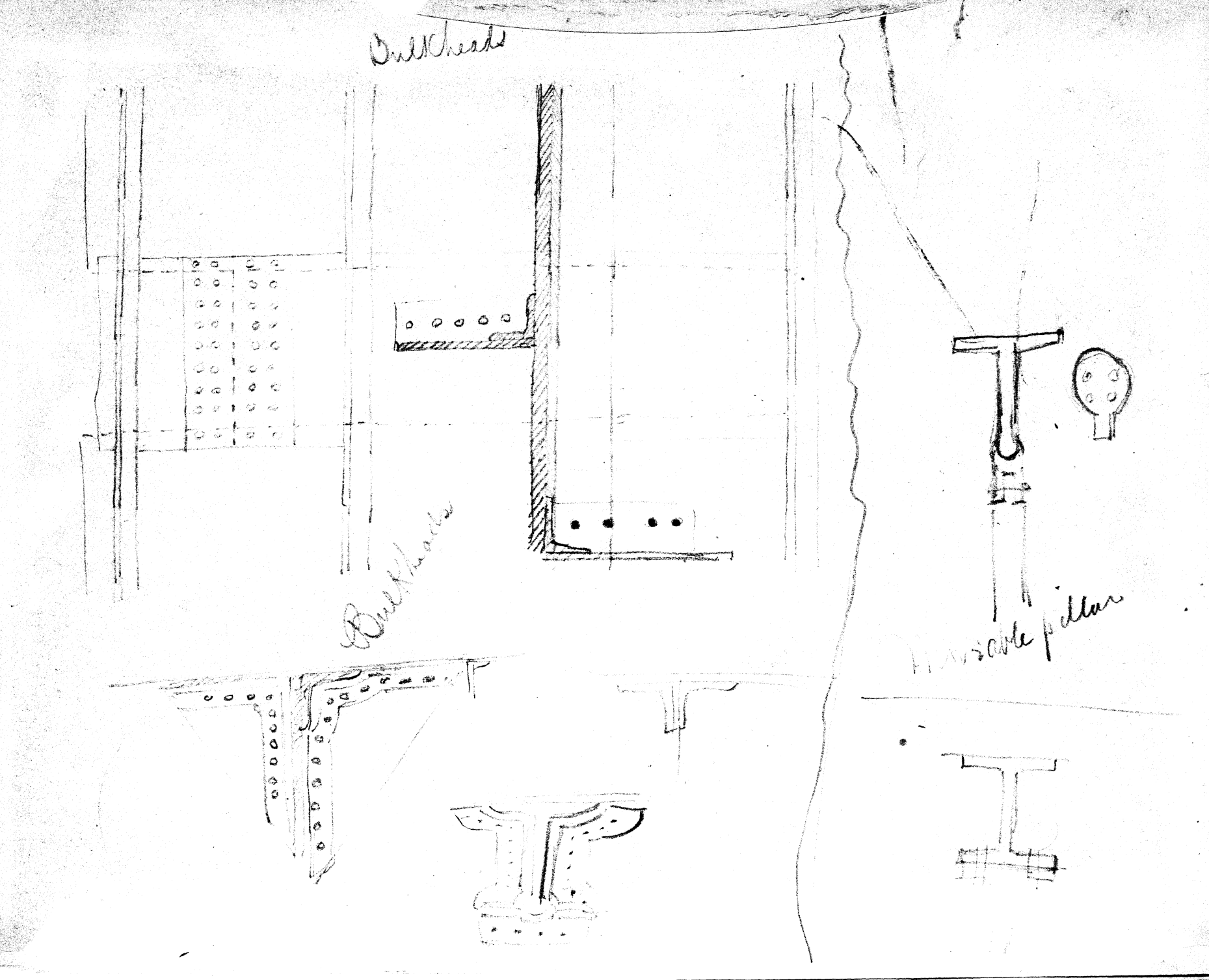


FIG. 4.




Bulkheads
Bulkheads
Transverse pillar

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